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THE UNIVERSITY OF ALBERTA

DESCRIPTION: A MEASURE OF CHILDREN'S LANGUAGE POWER

by

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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Description: A Measure of Children's Language Power" submitted by Edna Siemens in partial fulfilment of the requirements for the degree of Master of Education.

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ABSTRACT

Language power is the integration of two major areas of the child's development, his thinking power and his language competence. The purpose of this study was to explore the feasibility of looking at children's oral language behavior in description as a means of gaining a better understanding of their language power.

This study postulated that a research instrument based on description could provide a much needed measure in elementary education for assessing individual children's instructional needs in language. Description was conceptualized to be functional in all language situations and to involve the two dimensions of growth in language power.

A conceptual framework, "A Model of the Strategy of Description", representing the skills involved in description and their relationship to growth along the concrete-abstract continuum in cognition and the implicit-explicit continuum in language development guided the construction of the research instrument. The instrument consisted of five skills employed in description and two functional language tasks involving description which were arranged in increasing order of complexity.

The instrument was administered to sixteen individual subjects in two age groups, ages eight years six months to nine years five months and eleven years six months to twelve years five months. Each group consisted of average language users and high language users.

Specific categories were established for the analysis of each descriptive task and criteria were set up for the analysis of the various categories. In the first five tasks, the analysis of all responses focused on trends in frequency distributions, qualitative patterns, and the nature of the speech behavior regarding the four groups, the two age groups, and the two different levels of lanaguage users within an age group. Two children's language samples in "Description" and "Story Telling" were analyzed in the form of case studies in the light of their performance in the first five tasks with regard to the scope of their language power.

All the tasks revealed significant information about children's growth in language power. The results of the first five tasks pointed to developmental factors pertaining to growth in the concrete-abstract and the implicit-explicit dimensions. The case studies served to reveal that the combination of information yielded by the last two tasks and first five tasks could be effective in diagnosing children's instructional needs in language, the former instrumental in screening children's strategy in functional language situations and the latter for identifying specific strengths and immaturities in their growth in concreteness-abstractness and implicitness-explicitness.

According to this exploratory study, it appears that a measure based on description, hasconsiderable diagnostic potential for gaining a better understanding of children's growth in language power.

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TABLE OF CONTENTS

Chapter Page

I. THE PROBLEM.. 1

Introduction.. 1

Purpose of Study...................................... 5

Definitions of Terms.................................. 5

Design of the Study................................... 6

Population and Sample................................. 6

Data Collection....................................... 6

Research Questions.................................... 7

Analysis of the Data.................................. 7

Limitation.. 7

Significance.. 8

The Organization of the Study......................... 8

II. REVIEW OF THE RELATED LITERATURE..................... 9

Language Power.. 9

Dimensions of Growth in Language Power................ 14

Differentiation and Hierarchical Integration...... 15

Abstraction....................................... 17

Objectivity....................................... 24

Explicit Meaning.................................. 26

Growth in Word Meaning and Language Structure......... 29

Indices of Growth in Word Meaning and Language Structure.. 29

Growth in Explicitness in Communication........... 37

The Strategy of Description........................... 41

The Function of Description in Communication...... 42

Chapter Page

Use of Description as a Measure of Language Power 44

The Model of the Strategy of Description 47

The Skills Involved in Description 52

Summary 55

III. CONSTRUCTION OF THE RESEARCH INSTRUMENT 57

The Design of the Research Instrument 58

Criteria for the Construction of the Research Instrument 59

Principles Underlying the Development of the Descriptive Tasks 59

Level of Complexity 61

Other Criteria 63

Construction of the Descriptive Tasks 63

Descriptive Task Number One: Criterial Properties 64

Descriptive Task Number Two: Selection of Essential Elements 64

Descriptive Task Number Three: Comparison and Contrast 65

Descriptive Task Number Four: Sequencing 67

Descriptive Task Number Five: Inference 67

Tasks Six and Seven: Description and Story Telling 69

Summary 69

IV. DESIGN OF THE STUDY 75

Population 75

Sample 75

The Research Instrument 76

Testing Procedures for the Study 78

Chapter Page

Analysis of Data.................................. 79

Reliability of Analysis........................... 80

Pilot Study....................................... 80

Summary... 81

V. ANALYSIS AND FINDINGS OF THE FIRST FIVE DESCRIPTIVE TASKS.. 82

Introduction...................................... 82

Criterial Properties............................... 84

Categories of Meaning............................. 85

Part-Whole Relations.............................. 89

Qualitative Levels Within Categories of Meaning... 101

Summary... 117

Selection of Essential Elements................... 119

Description Achieved.............................. 120

Essential Elements................................ 128

Qualitative Levels in Speech Behavior............. 132

Summary... 133

Comparison and Contrast........................... 134

Organization of the Task.......................... 135

Quantity and Quality of Abstracted Features....... 139

The Expression of the Relationships Among the Abstracted Features.............................. 159

Summary... 186

Sequencing.. 189

Arrangement of a Logical Sequence of Actions...... 190

Sequential Relationships: Preceding and Subsequent Stages.. 202

Inference... 212

First Level Analysis.............................. 214

Chapter Page

Second Level Analysis.............................. 227

Summary.. 251

Summary... 253

VI. ANALYSIS OF DESCRIPTION AND STORY TELLING............. 256

Description and Story Telling.......................... 257

Case Study Number One.................................. 260

Analysis of Performance in Description and Story Telling.. 260

Performance in the First Five Descriptive Tasks... 262

Summary.. 265

Case Study Number Two.................................. 266

Analysis of Performance in Description and Story Telling.. 267

Performance in the First Five Descriptive Tasks... 269

Summary.. 273

Summary... 274

VII. SUMMARY, FINDINGS AND CONCLUSIONS, IMPLICATIONS, SUGGESTIONS FOR FURTHER RESEARCH................................ 276

Summary... 276

Findings and Conclusions............................... 278

The Concrete-Abstract Dimension...................... 280

The Implicit-Explicit Dimension...................... 285

Language Power as Revealed by the Descriptive Measures.. 287

Implications... 288

Suggestions for Further Research...................... 289

BIBLIOGRAPHY.. 290

APPENDIX A. Research Instrument........................... 298

LIST OF TABLES

Table		Page
2.1	The Spectrum of Discourse	43
3.1	Summary of the Construction of the Descriptive Tasks	70
4.1	Description of the Sample	77
5.1	Number of Different Categories of Meaning by Subject and Stimulus	87
5.2	Number of Subjects Identifying Selected Categories of Meaning: The Button	90
5.3	Number of Subjects Identifying Selected Categories of Meaning: The Cap	91
5.4	Number of Subjects Identifying Selected Categories of Meaning: The Dog	92
5.5	Number of Subjects Identifying Selected Categories of Meaning: The Horse	93
5.6	Summary of the Categories of Meaning Noted by Various Subjects	94
5.7	Number of Different Parts of Stimuli by Subject and Stimulus	96
5.8	Parts of Stimuli Noted by Subjects	98
5.9	Qualitative Levels of Responses: Color of Button, Cap, Dog	104
5.10	Qualitative Levels of Responses: Shape of Button	105
5.11	Qualitative Levels of Responses: Size Regarding Button, Cap, Dog, Horse	106
5.12	Qualitative Levels of Responses: Texture Regarding Button, Cap, Dog, Horse	107
5.13	Qualitative Levels of Responses: Weight of Button, Cap, Dog, Horse	108
5.14	Qualitative Levels of Responses: Use of Button, Cap, Dog, Horse	109

Table		Page
5.15	Qualitative Levels of Responses: Class Name of Button, Cap, Dog Horse	111
5.16	Qualitative Levels of Responses: Steel Shank Button	112
5.17	Qualitative Levels of Responses: Air Holes in Cap	113
5.18	Qualitative Levels of Responses: Sun Shade on Cap	114
5.19	Categories of Essential Elements Noted by Subjects, Notice: Cap Found	122
5.20	Categories in Selection of Essential Elements Noted by Subjects, Newspaper Ad: Dog Lost	123
5.21	Number of Subjects Achieving Success on Each Criterion and for Description, Notice: Cap Found	125
5.22	Number of Subjects Achieving Success on Each Criterion and for Description, Newspaper Ad: Dog Lost	127
5.23	Number of Essential Details Noted and Omitted, and Irrelevant Detail Noted by Subject and by Stimulus	129
5.24	Sequences Used in Organization of Responses in Comparing Stimuli by Subject and by Question	137
5.25	Total Number of Abstracted Features by Subject and by Question	140
5.26	Mean Number of Features Abstracted	141
5.27	Groups Identifying Categories of Meaning and Other Criterial Properties: Jelly Beans and Bell	147
5.28	Groups Identifying Categories of Meaning and Other Criterial Properties: Jelly Beans and Powder	148
5.29	Groups Identifying Categories of Meaning and Other Criterial Properties: Bus and V.W. Van	149
5.30	Groups Identifying Categories of Meaning and Other Criterial Properties: Boot, Shoe, and Slipper	150

Table Page

5.31 Groups Identifying Categories of Meaning and Other Criterial Properties: School and Theatre 151

5.32 Groups Identifying Criterial Properties: Birthday and Anniversary 152

5.33 Groups Identifying Categories of Meaning and Other Criterial Properties: Ant Comparing Boot and Slipper 153

5.34 Groups Identifying Criterial Properties: Father Comparing Boot and Slipper 154

5.35 Summary of Categories of Meaning Noted by Four Groups 156

5.36 Number of Different Categories of Meaning and Criterial Properties: and Perceptible, Functional and Conceptual Categories by Question 157

5.37 Number of Conceptual Categories of Meaning and Criterial Properties by Group and by Question 158

5.38 Mean Number of Listed Abstracted Features 161

5.39 Number of Listed Abstracted Features, Reduced Comparisons and Statements of Comparison by Subject and by Question 163

5.40 Mean Number of Reduced Comparisons 165

5.41 Mean Number of Statements of Comparison and Statements of Comparison Employing Relational Terms or Comparative Words 169

5.42 Subjects Identifying Actions for Helping Injured Friend 193

5.43 Subjects Achieving Criteria for Categories in Arrangement of Logical Sequence of Actions 194

5.44 Reasonable Inferred Ideas and Reasonable Sequences: Stages One, Two, Three and Number of Relational Terms Achieved by Subject 204

5.45 Reasonable Inferred Ideas and Reasonable Sequence Achieved and Not Achieved by Subjects 205

Table Page

5.46 Subjects Achieving Reasonable Inferences and Explicit Responses 215

5.47 Subjects Achieving Reasonable Inferences in Each Question 217

5.48 Subjects Achieving Explicit Responses in Each Question 218

5.49 Summary of Stated Clues: Picture of Car Accident by Groups 228

5.50 Summary of Stated Occupation and Clues: Picture of Teacher by Various Groups 231

5.51 Summary of Stated Occupation and Clues: Picture of Plumber by Various Groups 233

5.52 Summary of Stated Occupation and Clues: Picture of Model by Various Groups 235

5.53 Various Groups Expressing Feelings of Injured Player 239

5.54 Summary of Suggestions for Stopping a Train Without Red Scarf, by Various Groups 241

5.55 Summary of Reasons for Boarding up a Window of a House by Subject and by Group 244

5.56 Illustrations of the Expressed Feelings of the Two Men in a Picture Surrounded by Cars by Various Groups 247

5.57 Illustrations of Subjects' Expressed Feelings About Picture: Two Men Surrounded by Cars 249

List of Figures

Figure Page

2.1 A Model of the Strategy of Description 48

List of Photographic Plates

Plate	Description	Page
1	Button, Cap, Dog	301
2	Jelly Beans and Bell; Jelly Beans and Powder; Truck and V.W. Van; Shoe, Boot and Slipper	304
3	Boy Reaching for Flower Pot and Boy Watering Plant	306
4	Car Accident and Teacher	309
5	Plumber and Model	310
6	Injured Player and Two Men Surrounded by Cars	311
7	Police Barricade and Girl with Children . .	313
8	Fireman	314

CHAPTER I

THE PROBLEM

I. INTRODUCTION

The increasing research knowledge about the relationship of children's oral language development to school achievement has given an impetus to the examination of the scope and function of the study of language in the elementary school classroom. Goals for the language arts curriculum are being redefined with emphasis on expansion of the individual child's language power for effective communication in today's world.

> The vital role of the school in language development is built on the existing competence. In exercising this role, teachers and curriculum planners must keep in mind that all aspects of language, oral and written, are developmental. Growth in effectiveness, not perfection, must be stressed (Smith et al, 1970, p. 174).

"Competence" in this text addresses the language power of the child which may be said to be the interrelationship of "mental growth" and "symbolic expression" (Moffett, 1968, p. 18).

That the six year old child entering school has at his command a highly developed system of language, has been confirmed by research studies in the past fifteen years. Hocker's (1963) study, following those of Strickland (1962), Templin (1957), and McCarthy (1930), revealed that the six year old child possesses not only an extensive vocabulary and all the sentence patterns, but "a wide range of manipulative ability in his oral language (Strang & Hocker, 1969, p. 251)." By the time the normal child comes to school he has used language in many ways and is subconsciously aware that language has many functions that affect him personally (Halliday, 1969).

Recent research studies measuring verbal language behavior have drawn attention to language growth beyond school entrance. Templin (1957), in a study of children's oral vocabulary, found oral vocabulary doubled between the ages six to eight years. The study with children ages three to seven by Menyuk (1961) suggested the occurrence of increasing sentence length and variation in sentences in the older group's language. Significant findings regarding language development in Loban's (1963) study were the increase in the use of number of words and in sentence length during the first seven years of schooling.

Among the research studies showing a high correlation between oral language power and school achievement, Loban's study has probably had the greatest influence in the examination of language study in the elementary school. His findings led him to conclude that competence in spoken language appeared to be a necessary base for competence in writing and reading. The import of Loban's results, however, must be accredited to the support of other studies in the area. For example, the studies of Strickland (1962), Ruddell (1963), and Harrell (1957) showed a relationship of facility in oral expression to reading comprehension and written language.

The function then of the school language program is to provide directions of growth in language power and conditions which foster it which allow for the range of language abilities children of varying ages bring to school. In spite of increasing research in language, there continues to be a paucity of information regarding children's growth in language power and effective instrumentation for assessing the individual child's language ability. Comprehensive measures are needed which tap the spectrum of growth in language power, in thought and in language development.

Research measuring children's language to the present has been restricted in scope, in purpose, and in design. In the past objective measures have classified and counted isolated features of language production such as number of words, sentence length, variety of words and parts of speech, use of varied sentence types, complexity of structure, and coherence (Wilkinson, 1971, p. 117). Another major limitation in research to the present has been that the measures have tended to rely on single language samples obtained in single interviews. Wilkinson cautions that objective measures should be used with great care and that the situations in which language samples are obtained is of the utmost importance. He supports his position with an illustration of his work in which subjects giving a commentary scarcely scored on a modified index of subordination, but scored very high reporting a television index. He concludes, "Ideally, one needs to test subjects in several carefully chosen diverse situations (p. 118)." Watts as early as 1944 stated, "The extent of a child's power over language as an instrument of communication will naturally be looked for in his conversation (p. 68)."

Recent studies undertaken at the University of Alberta by McFetridge and associates (1973b) have pointed to the potential of a measure based on description for assessing children's language production. It is McFetridge's position that description is a language strategy which permeates all language situations. Watts (1944) conceived description to provide samples of children's continuous speech and designed some descriptive tasks for measuring the child's growing ability to see relationships among objects and to express the relationships in sentences. Since then little appears to have been done to explore the viability of the use of description in assessing children's growth in language. In 1969, Fournier published a composition program titled Thinking and Writing: An Inductive Program in Composition consisting of six curriculum units to develop facility in description. His rationale for the focus on description was that it is a basic form of many kinds of writing - narration, explanation, argument, and analysis. Fournier's task-analysis for the curriculum units revealed description to involve the basic cognitive and language skills.

The present study postulated that a research instrument based on description could provide a comprehensive measure for assessing children's oral language production, in a context approximating functional language situations, which would provide useful information about growth in language power for a "hypothesis for teaching (Jackson & McFetridge, 1972)." Description was conceptualized to be a language strategy which permeates all language situations and to involve a hierarchy of cognitive functions and language competencies. It was proposed that a research instrument based on description would be designed to tap children's growth in the concrete-abstract dimension in the cognitive domain and in the implicit-explicit dimension in language competence.

II. PURPOSE OF THE STUDY

The purpose of the study was to explore the feasibility of looking at children's oral language behavior in description as a means of gaining a better understanding of their language power.

III. DEFINITIONS OF TERMS

Language competence. The speaker's repertoire of words for naming purposes and qualifying meaning, fluency with words in sentences, and control of speech in a variety of situations.

Language production. The speech behavior in a particular language situation reflecting degree of abstractness of thought and language competence.

Language facility. Competence in spoken and written language as manifested in school achievement.

High language users and average language users. The degree of competence in spoken and written language reflected in achievement in the language arts subjects and as rated by the classroom teacher.

IV. DESIGN OF THE STUDY

Population and Sample

The sample for the study was four groups, a total of sixteen boys and girls in one elementary school located in a middle class community in Winnipeg, Manitoba. The four groups consisted of equal numbers of randomly selected average language users and high language users in two different age groups, ages eight years six months to nine years five months and eleven years six months to twelve years five months.

Data Collection

The research instrument, Description: A Measure of Children's Language Power, was constructed to elicit language samples from the individual child in a variety of situations involved in the strategy of description. The seven descriptive tasks, which included five skills employed in description and two functional language tasks, were arranged in order of difficulty from simple to complex and were based on an analysis of what is involved in description and a comprehensive review of literature relating to child development as it pertains to the cognitive processes and language development.

Group intelligence scores were made available by the school.

The research instrument was administered to the individual subjects by the investigator. The investigator met with each subject in four different sessions. The first two interviews served the purpose of establishing rapport with the subjects. The research instrument was administered to the individual subject in two separate interviews, a week apart, in the last two sessions.

V. RESEARCH QUESTIONS

1. What does a child's speech behavior in describing objects and events in situations of increasing complexity reveal regarding his growth along the concrete-abstract continuum?
2. What does a child's speech behavior in describing objects and events in situations of increasing complexity reveal regarding his growth along the implicit-explicit continuum?
3. What does a child's speech behavior in descriptive tasks reveal regarding his language power - the relationship between his thinking power and language competence?

VI. ANALYSIS OF THE DATA

The data were subjected to a subjective analysis. Description requirements established for each descriptive task in the construction of the instrument formed the categories for analysis in most tasks. The criteria for the analysis of the data within the categories were determined by the requirements of the tasks and the specific responses to the tasks.

VII. LIMITATION

The major limitation of the present study was seen to be the exploratory nature of the investigation.

VIII. SIGNIFICANCE

The study might suggest further development of the measure based on description and might reveal trends in language competence.

IX. THE ORGANIZATION OF THE STUDY

Chapter I has given a general introduction to the research problem and the methodology of the study. Chapter II presents a review of the theoretical considerations and the research literature which served as a guide to the study. The construction of the research instrument is described in Chapter III followed by the description of the research design in Chapter IV. Chapters V and VI contain the analysis of the findings and the results. The summary, conclusions, and implications for further research are presented in Chapter VII.

CHAPTER II

REVIEW OF THE RELATED LITERATURE

This chapter comprises the theoretical considerations and the review of the relative research literature which served as a basis for the conceptual framework of the strategy of description as a measure of children's language power. The first part of the chapter elaborates on the notion of language power. Four dimensions of growth in language power are examined in section two. Section three is concerned with growth in word meaning and language structure. A discussion of the conceptualization of the strategy of description as a measure of children's language power and the summary conclude the chapter.

I. LANGUAGE POWER

Language power is the integration of two major areas of the child's development, his thinking power and his language competence. A child's language power reflects the way he is experiencing the world and determines how he operates in it (Britton, 1970, p. 20). The child's cognitive functions are his means of making sense of the world, of current and past experience, and his language is the "key system" whereby "he represents the world to himself and organizes all other ways of representing (p. 21)."

Halliday (1969) states, "Language is, for the child, a rich and adaptable instrument for the realization of his intentions;

there is hardly any limit to what he can do with it (p. 27)." Halliday proposes seven models or ways the child uses language. The child may use language for getting things done, for regulating the behavior of others, for interacting with self, for expressing his individuality, as a means of investigating reality, and so on. The child's communication of his intentions is influenced by the demands of the language situation for each language situation is affected by such elements as the person speaking, the ideas the speaker is attempting to convey, the person to whom he is speaking, and the place or occasion in which he is speaking (Wilkinson, 1971, p. 52). The language power of the child determines the degree of his success in adapting to the demands of a particular language situation and in expressing his intentions. Power over language assumes the options the child uses in meeting the needs of the language situation which in turn depend on the language strategies available to him and how he uses those strategies. The underpinnings of the language strategies are labels for naming purposes and words for qualifying meaning, the differentiation and abstraction of attributes and the number of ways he categorizes his abstractions of the environment, and his repertoire of words for combining his ideas. Thus the clarity with which the child communicates his intentions is related to his language power which consists of the developmental level of the cognitive and language skills underlying his language strategies, intuitive or deliberate use of the language strategies, and the options the child uses in meeting the demands of a language situation.

The concept of language power represents the interrelationship of thought and language. It addresses at the same time the child's cognitive growth and language development, and the influence one has over the other. The apparent interrelationship between thought and language has prompted much speculation among investigators in child psychology regarding the development of thought and language, a major question being which one comes first.

Piaget and his Geneva associates (Piaget and Inhelder, 1969) posit the primacy of cognitive growth as regards language development. The work of Piaget's colleague, Hermina Sinclair-De-Zwart (1969), found possession of linguistic terms and structures, or the teaching of relevant verbal terminology to the children, little influenced the performance of the children on conservation tasks. It was her conclusion that language development, which appears to run ahead at times, cannot hasten or outstrip cognitive growth.

According to Piaget (1970) language development is facilitated by the "semiotic functions" or symbolic functions (p. 717). The semiotic function detaches thought from action and is the source of representation. The transition from index to symbol to sign which occurs through the semiotic function is seen to be related to the progress of imitation which is rooted in the sensorimotor level (p. 717).

Piaget and Inhelder (1969) concede, however, that language plays a dominant role in the growth of the powers of thought. They attribute this role of language in cognitive growth to the unlimited field of application of language, in time and space, as opposed to actions in sensorimotor behavior, which is limited in time and space (p. 86).

Mental processes in the Soviet investigations are regarded as the product of intercommunication with the environment and "the acquisition of the common experiences transmitted by speech (Luria, 1959, p. 11)." The major influential component of the environment is considered to be the language of the adults. Vygotsky (1962 translation [1934]) proposes that thought and language have different genetic roots and their functions develop along independent lines which cross and recross. At about the age of two, the two lines meet "to initiate a new form of behavior (p. 43)." Not unlike Piaget, Vygotsky sees the infant's action upon world as the first exercise of "budding practical intelligence (p. 46)." Speech enters into the intellectual phase when the child has discovered the symbolic function of words which occurs when he tries to learn the signs attached to the object. It is through the meaning of the word, when thought is embodied in the word, that thought comes into existence (p. 120). In Vygotsky's theory on concept formation, the intellectual functions play as important a role as the word. At the stage of true concept development, analysis and synthesis are the instruments of thought and the word is the key facilitator of the concept (p. 78).

Many theorists prefer to point to the strong interrelationship between cognitive growth and language development rather than to question which comes first. The general concensus is that growth in both areas is influenced by genetic and experential factors (Piaget, 1970; Vygotsky, 1962; Bruner, 1966; Lenneberg, 1970). Lenneberg (1970) views language to be an intimate part of cognition. He cites surveys which were done with children with a variety of handicaps which showed the children's grasp of how language works is related to their general cognitive growth due in part to physical maturation and in part to opportunities for interacting with a stimulus in the environment. Lenneberg stresses that language should be understood as an operation rather than a static product of the mind for it is "its *modus operandi* reflects that of human cognition (p. 17)."

That the child moves through identifiable, progressive phases of increasing complexity in coming to terms with his environment is attested by many theories of cognition. The cognitive theories of Piaget (1970), Vygotsky (1962), and Ausubel (1963) identify progressive stages of cognitive development from the global state to a more differentiated way of experienceing the world. Progressive phases means a preceding stage is necessary for the formation of the subsequent one. Smith et al (1970) state, "Children will move from one stage of complexity to the next, depending on richness of experential background, quality of dialogue with adults, and concomitant neurological development (p. 116)." It is Ausubel's (1963) theory that children at all ages engage in logical operations and problem solving. The age level differences, which are in degree and complexity, are attributable to a great extent to the child's growing ability to generalize and to use abstract symbols. This growing ability is reflected in the transition from subjective to objective thought and the transition from concrete to abstract operations (p. 115).

II. DIMENSIONS OF GROWTH IN LANGUAGE POWER

The notion of growth in language power takes into account two directions of development. The first progression in development is concerned with the laying down of basic skills, and the building on those skills, which occurs with growth in age. The second direction of development is toward internal refinement and complexity, the specialization of functions, and the continuous reintegration of functions as the child climbs the ladder toward maturity, as he grows from concreteness to abstractness and from lesser differentiation to greater differentiation. This section examines four dimensions of growth, the prime constitutents of language power, which represent the two directions of development. They are differentiation, abstraction, objectivity, and explicit meaning.

Growth in language power is essentially related to the individual's functioning along the concrete-abstract continuum in thought and the implicit-explicit continuum in language production. Growth across the abstractive hierarchy "consists of two simultaneous progressions - toward differentiation and toward hierarchical integration (Moffett, 1968, p. 29)." The level of differentiation and hierarchical integration is revealed in the level of explicitness of speech. "Explicit meaning," is also said to come, "through ability to use words and sentences precisely to make ideas clear (Jackson and McFetridge, 1972, p. 2)." Vygotsky (1962 translation [1934]) reasons that a child's thought initially finds expression in a word and as his thought becomes more differentiated, he is less apt to express it in single words but constructs a composite whole. He advances from two to three connected words to simple sentences, to more complex ones and finally to coherent speech made up of a series of such sentences (p. 126).

Differentiation and Hierarchical Integration

The concepts of differentiation and hierarchical integration are fundamental to almost all theories of cognitive development (Kagan and Kogan, 1970, p. 1278). The assumption is that human development proceeds from lesser to greater differentiation and hierarchical integration (Grant, 1972, p. 15). However, there is considerable ambiguity in the concept of differentiation.

Witkin (1962) has done considerable work on the cognitive dimension, "psychological differentiation," in which lesser differentiation and greater differentiation represent the distinction between a relatively global or relatively articulated way of experiencing the world (p. 181). A more articulated way of experiencing the world is achieved in the "progression from an initial unstructured state, with segregation of self from environment at best limited, to a more structured state with greater segregation of self (p. 183)." Grant (1972) suggests that a major characteristic of a highly differentiated state is specialization of functioning in which subsystems present within the general system mediate specific functions (p. 19). Progress toward differentiation may be rapid or slow depending on constitutional and experiential factors (Witkin, 1962, p. 182).

According to Kagan et al (1970), cognitive development is accompanied by more differentiated perceptions and the acquisition of differentiated and abstract concepts (p. 203). Conceptualization passes through a similar developmental sequence as perception. Concepts which are global and overgeneralized initially become specific and differentiated with age.

In language the developmental progression is also from the global to articulateness (Grant, 1972, p. 157). Lenneberg (1967) states, "The infant's first emerging patterns of language acquisition are global, undifferentiated aspects which gradually unfold until the differentiated rules, lexical items, and phonological skills are established (p. 208)." Differentiation of categories and greater complexity in hierarchical and relational structure of knowledge are seen by Ervin-Tripp (1966) to be accompanied by vocabulary growth (p. 62).

In Moffett's (1968) theory of verbal and cognitive growth, the notion hierarchy and hierarchical integration is synonymous with "orders of symbolization and stages of internal processing (p. 23)." Hierarchical integration operates not only in the progressive chain from perception to the combining of propositions. Knowledge structures are also built up and down. The child frequently underabstracts or over-abstracts and is unable to qualify his generalizations, and his concepts tend to range on the same plane in his mind. As concepts come to be increasingly ranked up the abstraction ladder (Hayakawa, 1962) and generalizations begin to be more synthesized, there is a continual reintegration of differentiated functions. Thus growth is toward internal complexity and external relationships as regards individual concepts and statements. In the sense of hierarchical integration, the child climbs the ladder as he matures. Moffett (1968) notes this integration depends on a downward thrust into details, discriminations, and subclasses (p. 29). Moffett's analogy of human growth in integration and differentiation and embryology provides a suitable summary: "... a simple cell becomes a complex organism by differentiating itself into specialized parts at the same time that it maintains integrity by continually interrelating these parts (p. 29)."

Abstraction

It is Moffett's (1968) observation that the function of "abstraction" is a process underlying all stages of information-processing, from sensorimotor and perceptual to affective and intellectual (p. 19). He concedes that abstraction may mean something a little different at each stage of development but that it still retains stable meaning through all stages. Elements of abstraction are the ranging of the information in one's mind in hierarchies of classes and subclasses, superordinates and subordinates, and selection which operates at the three different levels of perception, memory, and generalization. Moffett states:

> A definition of abstraction, in sum must center on a notion of selection; ..... A definition must also include the notion of hierarchy and hierarchical integration.........The combining of propositions cannot take place until classes exist, and the classes depends on the categorizing of experience, which presupposes memories of perceptions. Abstraction, by selecting and ranking the elements of experience, reduces reality to manageable summaries. To abstract is to trade a loss of reality for a gain in control (p. 23).

It is assumed that differentiation and abstraction proceed simultaneously (Kagan et al, 1970, p. 204).

Categorizing of experience. The integrated process of categorizing the objects of one's experiences into classes and subclasses which gives meaning to the sensory impressions of a particular experience with other similar events results in concept formation (Vinacke, 1954, p. 527). This process extends from perceptual thinking to conceptual thinking. It is continuous and cumulative. The process of categorizing begins as soon as the individual begins to sort out aspects of his environment. It becomes increasingly complex as properties of the environment are abstracted, selected, and excluded as seem appropriate for giving meaning to the particular situation.

For the child the concept is learned through the awareness of concrete, perceptual known properties of objects and the relations between them which lead to classification in groups. The use of hypothesis based on characteristics of classes to identify, define, and to respond to objects gradually evolves with experience with the concrete objects and with increasing age (Vinacke, 1954, p. 531).

This transition is characterized by a progression from simple to complex concepts; diffuse to differentiated concepts; egocentric to objective concepts; concrete to abstract concepts; variable to more stable concepts; and inconsistent to more consistent concepts (p. 532).

Vygotsky's (1962 translation [1934]) theory on concept formation depicts a gradual evolution from the syncretic heap to the formation of the true concept at the stage of abstraction, analysis, and synthesis, which the individual does not reach before the age of twelve. It is Vygotsky's thesis that a child develops the functional equivalents of concepts at an extremely early age but the forms of thought he uses to deal with concepts differ from the adults in their composition, structure, and mode of operations. A concept is "an active part of the intellectual process, constantly engaged in serving communication, understanding, and problem solving (p. 53)." Concept formation is a complex activity which involves the basic intellectual functions, association, attention, imagery, inference, and determining tendencies. The sign, which is the word, masters and directs the mental operations in problem solving.

The progression to concept formation, according to Vygotsky, occurs in three basic stages each subdivided into several stages: the syncretic image, thinking in complexes, and true concepts. Potential concepts play a role in complex thinking whenever abstraction occurs in complex formations. However, when complex thinking dominates, the abstracted feature which is unstable easily yields to other features. A true concept emerges when abstractions become stabilized and are synthesized. Analysis and synthesis are the main instrument of thought. The key facilitator is the word.

For the child, then, the sequence of concept formation is perception, abstraction, and generalization. Perception involves the abstraction of those qualities which are essential to the identification of an object or event (Vernon, 1962, p. 29). This applies to sound, taste, touch, smell as well as the visual pattern. To identify an object in different surroundings calls for the classification of different shapes and sizes at first, and latter the various properties possessed by an object or event. At first, when ability to focus and attention are limited, form and shape, and then color, play a dominant role in perception. With increasing ability to attend, increasing number of properties are observed in objects and events as are the differences between common objects and events, and the various kinds of relationships which exist among them (spatial, causal, temporal, etc.). Kagan (1971) notes that there is a dramatic improvement in sustained attention by age five to seven. During this process of growing perception, the proper names of objects first learned gradually are replaced by class names as the child makes the discovery that many different things may carry the same name (Watts, 1944, p. 147).

Generalization is the recognition, not of the same thing encountered again, but of something new resembling in some essential way something already known (Church, 1961, p. 68). For the infant who does not know what features to respond to, generalization is not a mental activity. Object B merely produces a reaction very much like object A. Mental activity is facilitated by the acquisition of words since the word is already a generalization (Vygotsky, 1962, translation [1934] p. 5). At the level of concept formation, generalization signifies that the dominant abstracted features are "used as a basis for responding similarly to the separate objects linked by abstraction and for responding to other objects similarily linked (Vinacke, 1952, p. 104)."

Inferential thinking is also involved at all levels of concept formation. According to Wohlwill (1970) inference is the opportunity for the individual to "supplement or replace the sensory data with information or knowledge not contained in the immediate stimulus field (p. 84)." The amount of information the individual requires from the stimulus field in order to make the judgment may vary over a wide range from perceptual to conceptual thinking. As the individual grows toward conceptual thinking the amount of redundant information required decreases, whereas there is an increase in the amount of irrelevant information that can be tolerated without affecting the response and the spatial and temporal distance over which information is contained in a particular situation can be integrated.

Selection. Selection is seen by Moffett (1968) to operate at different levels of information processing, perception, memory, and generalization. This means that selection is something different at different levels of the nervous system. Its function is to single out some environmental features and ignore others, but selection is not mere elimination. It is noted that to begin with attention itself is selective. Moffett reasons that the difference in selection at the various levels "is that the features are not only selected but reorganized, and increasingly as we go up the scale of the nervous system, integrated with previously abstracted information (p. 22)." He explains that in perception, it is sensory data that are being selected and rearranged in relation to each other, while in memory and generalization, it is the "lower-order abstractions" (p. 22) themselves that are selected.

Levels of abstraction. In Church's (1961) theory of "concreteness" and "abstractness" functioning is relatively concrete when behavior reflects sensorimotor functioning, mediation through schematic perception, and the domination of external stimulation, whereas functioning is relatively abstract when behavior reflects perceptual mediation, thematical mediation, and the domination of the individual's plans and purposes (p. 115). Abstract behavior operates in the present situation as well as in remote ones for it is possible to act toward a present situation either concretely or abstractly. Abstract operations which are operations with symbols are possible only because of the word. It is Vygotsky's (1962 translation [1934]) view that it is in the word primitive generalizations rise to the most abstract concepts. He adds, "It is not merely the content that changes but their way in which reality is generalized and reflected in a word (p. 121)."

It is Church's (1961) conjecture that developmental functioning as it pertains to concreteness-abstractness is not merely progression from the particular to the general from "the abundance of the concrete to the austerity of the abstract (p. 118)," but the unification and simplification of experience, the reduction of complexity to orderly, manageable principles. In the process of differentiation, Church believes "differentiated perceptions, knowledge and processes are brought together in new, higher-order patterns which permit simplicity and directness of action (p. 118)."

Progression in the direction of greater abstraction usually occurs with growth in age as does progress toward greater differentiation. The factors which contribute to growth toward "abstractness" are those which are basic to cognitive development - genetic influence and experience. Ausubel (1963) suggests the ultimate cause in the transition from concrete to abstract functioning is the individual genetic potentiality and the necessary experience to actualize it, the developing of mechanisms for information processing and storing, and the processing of information at the concrete-empirical level and noncategorical level. The specific determinants of change from concrete to abstract functioning are as follows:

1) Acquisition of a working vocabulary of mediating terms which make possible the relating of abstractions to meaningful propositions.
2) A growing fund of stable higher-order concepts and principles which are basic to relating propositions within the

cognitive structures.

3) Many years of meaningful practice in understanding and manipulating relations with the aid of concrete-empirical properties.

(Ausubel, 1963, p. 120)

Progression from concreteness to abstractness is both continuous and discontinuous. It is continuous in that underlying the growth from concrete to abstract functioning are the principles of cognitive sequential development. The level of abstractness may vary within an individual's behavior from day to day, among the individual's various behaviors according to the background of experiences pertaining to the particular behavior, and the level of complexity of the task (Ausubel, 1963, p. 114). Ausubel points out that persons functioning at the abstract level may well revert to concrete functioning when introduced to an unfamiliar situation but will pass through this stage more quickly than the person whose functioning is predominantly concrete (p. 119). Church (1961) speaks of every day reality representing "some sort of merger of abstract and concrete, of perceptual and symbolic (p. 118)."

Objectivity

The transition from subjective behavior to objective behavior in thought and in speech occurs simultaneously with the transition from concreteness to abstractness and from lesser differentiation to greater differentiation. Subjectivity is rooted in that aspect of the child's development which has come to be called egocentricism and egocentric speech and which is characterized by global functioning - concentration on self, gross discriminations, unstable images, conglomerate word meanings, diffuse concepts, and absence of role-taking (Piaget, 1926; Ausubel, 1963; Vygotsky, 1962; Vinacke, 1954; Cazden, 1972). Objectivity on the other hand represents progression toward greater differentiation manifested in particular in the growing ability to adopt the point of view of others. In the words of Ausubel (1963): "Aquisition of the ability to separate objective reality from subjective needs and preferences results in the disappearance of autistic, animistic, anthropomorphic, magical, absolutistic and nomalistic thinking (p. 115)."

Within Piaget's system, the process "decentering," which facilitates the transition from action to thought, makes possible the transition from subjectivity to objectivity (Piaget & Inhelder, 1969). The process of decentering is "the transition from an initial state in which everything is centered on the child's own body and actions to a "decentered" state in which his body and actions assume their objective relationships with reference to all the other objects and events registered in the universe (Piaget & Inhelder, 1969, p. 94)." At the point of acquisition of functional language, decentering applies to an interpersonal and social universe, in addition to the physical universe, in the cognitive, affective, and moral domains. It leads to a condition for the objectivity, equilibrium, and universality of operations. It is suggested by Piaget and Inhelder that the long period from age two to twelve years "the unfolding of a long, integrated process that may be characterized as a transition from subjective centering in all areas to a decentering that is at once cognitive, social and moral (p. 128)." Progression towards objectivity in this period is evidenced in the assimilation of reality to the self and its desires and the eventual evolvement of use of constructed games and games with rules; a widened scope in the affective domain with the extension of social relations beyond the family; mutual respect and reciprocity replacing moral feelings bound to authority; and the gradual socialization which leads to a state of coordination of points of view and cooperation in action and communication (p. 129).

Explicit Meaning

The individual's language production is the medium through which he conveys his thoughts and feelings to others. The essence of language production is communication effectiveness. The process of language production or communication may be said to be a composite of several inseparable skills which are linguistic competence, cognitive skills, and role-taking skills (Krauss & Glucksberg, 1969, p. 263), the language power of the individual. The individual's language power is reflected in the degree of "implicitness" or the degree of "explicitness" in his speech behavior in a communication situation.

Explicitness in language production refers to ability to use words and sentences precisely to make the meaning of ideas clear (Jackson & McFetridge, 1972). Explicitness is embodied in the simplicity and directness of action akin to abstractness and growing objectivity in ability to adopt the point of view of others which develop along with growth toward greater differentiation.

Implicitness in language production on the other hand tends to be amorphous, lacking in preciseness in the expression of meaning. It is related to Piaget's (1926) egocentricism which is estimated to persist to approximately age seven or eight. Egocentric speech consists of a lack of precision in children's explanations due to their assumption that people can read their thought. It is characterized by the following: an abundant use of pronouns, personal and demonstrative adjectives (e.g. he, she, that, the, him) without indication of what they refer to; lack of coherence due to failure to attach importance to order and the resulting lack of order; emphasis on the particular events instead of on the relations of time or cause which unite them.

Bernstein's (1962) two codes of communication, restricted code and elaborated code, are synonomous with implicitness and explicitness in language production. The elaborated code is considered to facilitate "verbal elaboration of intent" and the restricted code to limit "verbal explication of intent (p. 233)." Although frequently used in the identification of social class speech, Bernstein (1968) maintains the restricted code is not necessarily linked to social class speech. The use of the restricted code in which "the meaning of the individual is likely to be implicit (p. 455)" tends to have its origin in a nonlinguistic context in which the social "relationship is based upon a common, extensive set of closely shared identifications and expectations (p. 455)." Hess and Shipman's (1968) definition of the restricted code and the elaborated code further delineate the characteristics of the two codes:

> Restricted codes are stereotyped, limited, condensed, lacking in specificity and the exactness needed for precise conceptualization and differentiation. Sentences are short, simple, often unfinished; there is little use of subordinate clauses for elaborating the content of the sentence; it is language of implicit meaning, easily understood and commonly shared ......The basic quality of this mode is to limit the range and detail of concept and information involved.
>
> Elaborated codes, however, are those in which communication is individualized and the message is specific to a particular situation, topic, and person. It is more particular, more differentiated, and more precise. It permits expression of a wider and more complex range of thought, tending toward discrimination among cognitive and affective content (p. 467).

It is important to stress that explicitness of speech should not be confused with verbalism. Law (1963-1964) on the theme of language intervention in preschool education warned that the nursery school teacher should not be dazzled by a child's vocabulary and verbal dexterity. He said, "Verbal dexterity is not literacy. Words clearly linked to meaning used for purposeful communication are (p. 6)." It is well known that children use a large number of all kinds of words and use correct grammatical forms and structures before understanding the meaning of words and logical operations (Watts, 1944, p. 166; Vygotsky, 1962, p. 46). Watts states, "...the mere use of words, however intelligent and facile it may be, is no evidence of an appreciation of their meaning (p. 166)."

III. GROWTH IN WORD MEANING AND LANGUAGE STRUCTURE

This section is concerned with the review of research literature which points to growth in word meaning and language structure as a function of maturity and a synthesis of the factors underlying growth in explicitness in communication.

Indices of Growth in Word Meaning and Language Structure

There is abundant evidence in the literature to show that advancement in the skills in word meaning and in language structure are indices of growth in language competence as the child climbs the ladder toward maturity.

Word meaning. Templin's (1957) study with children ages three to eight is representative of the numerous studies which have demonstrated that children's speaking vocabulary increases with age.

Loban (1963) conducted a longitudinal study of children from kindergarten to grade six. Among the 338 children in his study, subgroups of thirty subjects exceptionally high in language ability and twenty-four subjects exceptionally low in language ability were identified for intensive study. In discussing his findings with regard to vocabulary, Loban comments, "...the ability to find words with which to express oneself - and to find them readily - is normally one mark of success with language (p. 29)." He found his subjects spoke more words in each of the succeeding years, with a notable increase, except for the low subgroup, in grades four, five, and six. He noted that the high subgroups used more words and units of communication than did the low subgroup and maintained its initial superiority over those in language ability.

The investigations which have attempted to measure the qualitative aspects of vocabulary development, probing growth in word meaning, have shown similar results in growth to those studies which have counted vocabulary. Studies on growth in meaning of words done by Binet and Simon (1916); Kirkpatrick (1907); and Gray and Holmes (1938) demonstrated that the vocabulary range and the quality and completeness of word definition increases considerably from the lower to higher grades. Gray and Holmes (1938) observed that the period from nine to fifteen years of age is a period of notable acquisition in the different types of meaning. Feifel and Lorge (1950) in a study, in which the Form L Stanford-Binet Vocabulary Test was administered to 900 children, ages six to fourteen, made the following observations:

> The younger children significantly more often employed the use of description, and illustration, demonstration, inferior explanation, and repetition types of response whereas the older children significantly more often used the synonym and explanation types of response........Characteristic differences exist in the thinking of younger children similar in background..... Younger children perceive words as concrete ideas and emphasize their isolated or particular aspects, whereas older children stress the abstract or 'class' features of the word meanings (p. 17).

According to Langer (1967) a study which is noted for its synthesis of the relationships between vocabulary and concepts is the one done by Russell (1954) (p. 453). Multiple meanings of words were extensively used in the tests constructed for this study. Russell (1954) was concerned with the way children in grades four through twelve develop broad and deep meaning vocabularies, their efficiency in categorizing, generalizing, and making meaningful associations. His study indicated that vocabulary abilities become increasingly specialized as children mature from the fourth through the twelfth grades. There was some evidence that girls' vocabulary development becomes somewhat more specialized earlier than boys' (p. 374).

Examples of attempts to measure particular aspects of word meaning growth were studies done by Ervin-Tripp and Foster (1960) on children's use of descriptive terms; Asch and Nerlove (1960) on understanding of double function words; and Werner and Kaplan (1950) on gaining word meaning from context. The three studies showed an increase with age in use and understanding of these particular kinds of skills.

Ervin-Tripp and Foster (1960) conducted an experiment with first grade and sixth grade children to explore the acquisition of denotative and connotative meaning. The children were asked to supply descriptive words for materials selected to measure Osgood's (1957) potency factors (e.g. factors of weight, strength, and size) and Osgood's evaluative factor (e.g. clean-dirty; happy-sad; and so on). The results revealed considerable denotative confusion (e.g. among such words as "big," "strong," and "heavy") and considerable connotative confusion (e.g. among such words as "clean," "smiling," and "pretty") in the younger group. There was a marked decrease in confusion in the older group although it was still present. Connotative meaning presented more difficulty to both groups than did denotative meaning. Size presented the least difficulty in the denotative realm; "cleaner" presented the least difficulty among the connotative words. The limitations in the use of words of this nature, as with quantitative expressions such as "many" and "few," are attributed to children's difficulty in thinking in relative terms (Carroll, 1964, p. 196).

The Asch and Nerlove (1960) study with children ranging in ages three to twelve years asked the question whether children master double function terms, such as "sweet," "hard," "cold," "soft," "bright," "deep," "warm" and "crooked," first in the physical sense or the psychological sense (e.g. "a brittle person"), or simultaneously. Children six years and under used the words in the physical sense, which were restricted to "sweet," "hard," "soft," and "bright," and tended to disclaim a physical-psychological relation. From ages seven to ten there was a marked increase in the use of words in the psychological sense. The nine-ten year old group showed an understanding of double function words and an attempt to state a dual function. The older group's use and understanding of double function words was not much advanced over the nine-ten year old group, but there was a noticeable advance in ability to state relations.

Many features of concept-word development, some of the most common words, are difficult to measure with the quantitative or qualitative vocabulary tests due to their embeddedness in the structure of language (Langer, 1967, p. 452). Langer states, "These abstract, multiple meaning words indicate relationships, associations, similarities, differences and analagous relationships among words and their accompanying concepts (p. 452)." Yet the acquisition of such words signifies growth in language competency as it does growth in thought processes.

In his examination of the language and mental development of children, Watts (1944) makes some significant observations regarding the acquisition and use of relational words. The connectives in the child's vocabulary at approximately age seven are mainly "because," "if," and "unless" since they are sufficient for the concrete level of thinking for this age (p. 81). The presence of "provided that," "unless," and "although" in the child's complex sentences is an indicator of approaching mastery of relationships. An understanding of what is meant by such terms as "longer" and "shorter," "heavier" and "lighter," "louder" and "softer," and "faster" and "slower" develops much latter than names of objects and comes as a result of experimentation with things possessing comparable properties (p. 148). Among the words signifying spatial relationships, "up" and "down," "right" and "left," "over" and "under," "above" and "below," and "before" and "behind," closely related to early childhood experiences, are usually known at the nursery stage. The aptitude for thinking in spatial terms develops throughout a child's school career as he gains an understanding of what is meant by certain geometrical terms (p. 150). This observation is in line with some of the Genevan findings which have suggested that children with conservation used more highly differentiated relational terms than those without conservation (Inhelder et al, 1966, p. 162). According to Watts (1944), the child's incongruities in his reference to the past and the future, and the use of words denoting time is a result of his difficulty with time concepts. He states, ".......apprehension of temporal relations, as they exist for human consciousness, is an extremely complex product of mental development (p. 166)." The appearance of the words "today," "yesterday," and "tomorrow" has been found to be present in four year old speech and was considered to be present as the result of imitation at first (p. 168). Watts notes the first reference of time in the Stanford Binet Test is at the six year old level when children are expected to understand "morning" and "afternoon." By age nine it is estimated the child has "passed out of the period in which their past days are yesterdays, and all their days to come are to-morrows (p. 169)."

Language structure. Numerous studies have focused on mean sentence length as a measure of maturity in language competence (Nice, 1925; Harrell, 1957; Templin, 1957; Menyuk, 1961; Loban, 1963; Hunt, 1965; and O'Donnell et al, 1967). Strickland, Hunt, O'Donnell et al, and Loban attempted to overcome the structural problem of long sentences composed of simple co-ordinated clauses by adopting a measure which they termed the "T-Unit" or Loban's "C-Unit." Loban's "communication-unit" consisted of the grammatical, independent clause with any of its modifiers (p. 6). His study revealed a marked increase in C-Units during the first years of elementary school, minimal increase in the middle period, and then a spurt in increase at approximately age eleven. Average number of words per C-Unit increased gradually from kindergarten to grade six.

Loban's study provided considerably more evidence regarding maturational changes and language proficiency than increase in vocabulary and in C-Units. Language proficiency was seen to be reflected in two major areas of development, fluency and effectiveness and control. Fluency took into account: the amount of language uttered; freedom from mazes; extent of vocabulary; linguistic style - fluency-hesitancy and readiness-slowness of response (p. 29). Mazes were interpreted to be false starts, tangles, and hesitations in an utterance. The conclusion was that the subjects' fluency increased over a period of seven years by increasing the amount of language they use, by reducing the proportion and size of their mazes, and by gaining in smoothness in their expression. The high group maintained its superiority to the low group throughout the seven year period in all aspects of fluency (p. 42). Other notable findings were that run-on-sentences and limited connectors were pronounced during the first four or five years.

Effectiveness and control which increased with maturity was noted in the following:

- ability to use and vary the structural patterns of English
- dexterity in varying elements within the structural patterns
- competence with reading and writing
- coherence through the use of subordination
- coherence through the use of subordinating connectives
- coherence through control of mazes
- coherence of spoken style
- mastery of conventional usage and grammar
- ability to express tentative thinking by means of provisional or conditional statements

(p. 43)

The findings revealed little variation in use of basic structural patterns of English among all subjects. The high group in language showed greater dexterity in varying the elements within those patterns and greater sensitivity to the conventions of standard English, more frequent use of provisional and conditional statements, greater competence in writing and reading, and greater coherence (p. 69). Other lines of growth were also noted. Use of subordination and subordinating connectors were seen to be related to chronological age, proficiency in language, and socio-economic status. Loban's findings on subordination are supported by Hunt (1965) and O'Donnell et al (1967) who have followed the increase in written language, from childhood to adult, in the number and length of clauses combined in a single sentence. Presence of statements of facts, interpretation of statements, personal association of statements, and tentative statements in the middle grades showed a minimal increase in the upper grades. Tentative statements increased substantially in the upper grades. Irrelevancies were present across the ages. Children in the middle grades used virtually no generalizations and figurative language while the children in the upper grades used them sometimes.

Growth in Explicitness in Communication

The review of the literature on indices of growth in word meaning and language structure points to the dominant role of growth in the mental process in the increase of the repertoire of words and increased proficiency with words in sentences. Word meanings and facility with words in sentences is acquired as categories of meanings are formed and the child grows in seeing the relationships which exist among them. Lenneberg (1970) posits:

> Virtually every aspect of language is the expression of relations. This is true of phonology,....semantics, and syntax.....in all languages of the world words label a set of relational principles instead of being labels of specific objects. Knowing a word is never a simple association between object and an acoustic pattern, but the successful operation of those principles,...that lead to using the word "table" or "house" for objects never before encountered.......the universal is the generality that words stand for relations instead of being unique names for one object.
> ....language has a second order of relational principles, namely principles in which relations are being related, that is syntax in which relations between words are being specified (p. 18).

Thus growth in explicitness in communication develops as the child moves up the ladder of abstraction and greater differentiation, and more language competencies become available to him.

The power in effective communication as regards vocabulary is not only in the quantity of words known but in the range and quality of meaning of words or the ways children attach meaning to words (Russell, 1954; McFetridge, 1970; Evanechko, 1970; Payne, 1972). In his study on The Dimensions of Children's Meaning Space, Evanechko

(1970) identified twenty-four ways of knowing a word. Russell's (1954) study on the breadth, height, and depth of vocabulary attempted to probe the number of alternative meanings of a word which the child possesses and the nature of the meanings that children possess in addition to number of words for which the child knows a meaning.

Jackson (1970) observes that as children's conception of the world changes as they progress through school, a change is evidenced in "the nature of the meanings that children possess for words (p. 1)" or "the depth" of their meanings of words. Jackson's point of view is illustrated by his reference to the meaning of orange as described by children of different ages. The young child may say an orange "is round, bright and you eat it," and a still older child may state, "It's a citrus fruit" (p. 1). "It's a citrus fruit," reflects the child's growth in categorizing behavior, and therefore his growth in language power and in his ability to be more explicit in communicating his ideas.

According to Jackson, the changes that take place in depth of knowledge of vocabulary seem to progress along two dimensions:

> The first appears to be that of generalization. The meanings for words gradually become more general and more abstract so that they include all the instances which truly belong together under one meaning. For example, the category "citrus fruit" includes all "oranges." The second dimension appears to be that of differentiation. Gradually particular instances which could belong under different meanings are excluded from the original meaning. For example, the meaning of the word "car" may include all wheeled vehicles to the

> young child. Later he will have different words for trucks, buses, motorcycles, etc. (p. 1.)

Power in effective communication also assumes proficiency with words in sentences. When Cazden (1972) states that a child has the option for making meaning less or more explicit when he selects to refer to a spot on the rug in one of the following ways: "it, that, that over there, the spot near the leg of the table, etc. (p. 185)," she gives credence, not only to the relative power of the single word, but to the word or words in the environment or context of other words. Cazden's point is underlined by Britton (1970) who suggests that he finds the concept of vocabulary as a reservoir at the child's disposal misleading for he conceives the power of language to be in the flow of words (p. 162).

It is Loban's (1963) position that fluency with words and the communication pattern are measures of effectiveness and control of language in the light of what is done to achieve flexibility within the patterns (p. 43). Loban (1970) states: "As I continued by longitudinal study of children's syntax those children who manifest power in using language use an impressive repertoire of the strategies available in the English language (p. 625)." This he interprets to mean that proficient language users use the full potential of language which includes such syntactical devices as co-ordination or subordination to express a complex idea or using an appositive to reinforce or to extend the listener's understanding of what is being communicated. This assumes the ability to pack a greater density of ideas into a single sentence by embedding one sentence in another

(Cazden, 1972, p. 83). As indicated earlier the Hunt (1965) and O'Donnell et al (1967) studies provide support for Loban's position.

In summary, McFetridge's (1973a) hypotheses regarding directions of growth in word meaning and language power serves to point to the numerous facets in the growth of language power as it pertains to words and sentences in communication effectiveness:

> Word Meaning: Directions of Growth
> 1. Criterial Properties and Connotation
>   a. Increasing number of attributes or dimensions observed and labelled.
>   b. Increasing refinement of the labels for criterial properties and connotation.
> 2. Differentiation
>   a. A word is applied to more objects, in more contexts, in more times, from more points of view.
> 3. Abstraction
>   a. Increasing refinement of the critical attributes that define classes leading to hierarchies of concepts represented by the word.
>   b. Increasing number of instances included in the concept represented by the class name.
> 4. Meaning Space
>   a. Increasing meaning space for any word - more kinds of meaning that can be attached to the word and more ways to express each kind of meaning.
>   b. Increasing shift of words from intuitive (or patterned) production (or word as criterial property), to comprehension, to controlled production.
> 5. Integration
>   a. Increasing ability to use a word appropriately in a variety of language contexts.
>   b. Increasing ability to give a word meaning for others in multi-level situations.
>   c. Increasing ability to supply definitions, synonyms. Increasing repetoire of choices.
>
> (p. 1)
>
> Language Structure: Directions of Growth
> 1. Sole use of simple sentence patterns to flexibility within patterns.
> 2. Increase in the number of communication units in any activity.

3. Increasingly more information carried in each communication unit (density, compactness) through embedding, substitution, modification, and subordination.
4. Length of units increases, but not dramatically.
5. Growth in command of tense from the present, to present and past, to present, past and future, and to the flexible manipulation of tense within a presentation.
6. Steady move from implicit meaning, ideas presented in discrete units to meaning made explicit through direct use of words. eg. Time expressed in a variety of ways by Grade 2; causality by sequence in Grade 2; by sequence and some words in Grade 4; conditional relations implicit until Grade 6 where beginnings are made in use of words.
7. Growth from ideas expressed egocentrically to ideas expressed in a detached manner.
8. An increasing repertoire to express any ideas or set of ideas, leading from one-level to multilevel usage, from dogmatism to tentativeness and variety.

(p. 2)

IV. THE STRATEGY OF DESCRIPTION

This section describes a conceptual framework of the strategy of description as a measure of children's power over language. It includes an examination of the function of description in communication, a review of research in which description was used as a measure of children's language development, and an analysis of the strategy of description. The conceptual framework of description is charted in "A Model of the Strategy of Description" in Figure 2.1.

Most of the literature on description, which is sparse, appears in the context of written rhetoric or composition. The chief contributors, Snortum (1967); Fournier (1969); and Hennings and Grant (1973) are concerned with task analysis for effective written expression. Fournier's (1969) theory on description is the basis for a composition program for elementary education titled Thinking and Writing: And Inductive Program in Composition. Theories on the use of description as a measure of children's oral language behavior have been proposed by Watts (1944); Jackson and McFetridge (1972); and McFetridge (1973b). Reviews of description as an objective in early language development in preschool education and reviews on use of description in research in social class speech behavior have been done by Cazden (1971, 1972).

The Function of Description in Communication

The prime use of language is communication (Vygotsky, 1962, translation [1934]; Smith et al, 1970; McFetridge, 1969). Communication situations are frequently classified as informal language situations. The informal language situations may be said to be conversation, discussion, argument, persuasion, and questioning, whereas creative and expository composition and reading are classified as formal contexts of language usage (Smith et al, 1970, p. 174). Moffett (1968) conceives of four levels of communication, the traditional categories of discourse - drama, narrative, exposition, and argumentation. The four levels are determined by increasing distance between the speaker and the audience, between first and second person (p. 33). Moffett's schematic representation of the whole spectrum of discourse appears in Table 2.1. Since children's abstractive powers are not developed enough to enable them to conceptualize and interrelate their experiences, and thus differentiate their thoughts

Table 2.1

The Spectrum of Discourse

Now for a highly schematic representation of the whole spectrum of discourse, which is also a hierarchy of levels of abstraction.

Interior Dialogue (egocentric speech)			P
Vocal Dialogue (socialized speech)	Recording, the drama of what is happening.	PLAYS	O
Correspondence			
Personal Journal			E
Autobiography			
Memoir	Reporting, the narrative of what happened.	FICTION	T
Biography			
Chronicle			
History	Generalizing, the exposition of what happens.	ESSAY	R
Science			
Metaphysics	Theorizing, the argumentation of what will, may happen.		Y

(Moffett, 1968, p. 47)

into specialized kinds of discourse such as generalization and theory, they are for a long time almost solely dependent on narrative discourse for the expression of thought (p. 49).

Description is a language strategy which permeates all communication situations (McFetridge, 1973 b). In reference to the function of description in writing, Snortum (1967) states:

> Almost everything you write will include some paragraphs in which you want your reader to see something - a person, a room, a scene ~~or a~~ device. You may bring the picture alive with sounds or smells and perhaps even textures and tastes, but the dominant images will almost certainly be visual (p. 135).

According to Snortum the strategy of description is a resource for the strategies of narration, explanation, criticism, evaluation, argument, and persuasion (p. 161).

Use of Description As a Measure of Language Power

There have been few research studies which have utilized description as a measure of children's language power. Whatever research has been done on children's oral descriptive language has been limited in scope, in purpose, and in design.

Watts (1944) designed the English Language Scale to measure young children's mastery of the varieties of the English sentence which he considers to be one important aspect of children's linguistic development (p. 287). He believes the sentence represents continuous speech, namely conversation, which is the best indicator of children's power over language (p. 68). The descriptive task is to reflect the child's ability to operate with meaning and to express relationships.

The English Language Scale consists of six sets of six pictures which are arranged in order of difficulty. Stage One through to Stage Six coincide with ages four through to nine years. The task requirement is to describe the picture with: "This is a picture of.........." The language age of the child is determined by the number of pictures satisfactorily described and rated according to the language scale devised by Watts. The description requirements are as follows: Stage One - two related ideas; Stage Two - three related ideas; Stage Three - four related ideas; and Stage Four - five related ideas. Three related ideas and relative pronouns as subject in a subordinate clause are required in Stage Five. Four related ideas and a relative pronoun as object in a subordinated clause are the requirements for Stage Six. The descriptive tasks were presented to children in a number of schools when the test was first designed.

More recently Hawkins (1969); and Brandis and Henderson (1970) obtained children's descriptive language for the purpose of exploring social class differences in explicitness of speech behavior. The task requirements and the description requirements were limited in scope. In the Hawkins' (1969) study, in which 110 children were required to describe three paintings of scenes in a railway station, of a garden, and in a street, the children's descriptive language was analyzed to discover the use of nouns and pronouns among middle class and working class children.

Other studies done by Krauss & Glucksberg (1969) and Glucksberg et al (1966) utilized the Krauss "squiggles" for the purpose of measuring social class communication effectiveness in both encoding and decoding ability. The child was required to describe a number of objects, the "squiggles," to a child behind a screen in such a way that the listener could identify the described objects in a group of objects. In a study done by Heider (1971), the subject was required to describe a Krauss "squiggle" and a Frois Wittman picture of a male facial expression for the purpose of exploring social class differences in coding effectiveness.

Heider et al (1968) sought to discover social class differences in the number of criterial properties mentioned in children's descriptions of pictures of animals.

Two recent exploratory studies involving description which were done at the University of Alberta pointed to description as a useful measure for assessing children's language power. In a small study reported by Jackson & McFetridge (1972) the criteria used for assessing children's description of objects were the following: ability to focus; ability to organize ideas; ability to provide description; ability to use relational terms; and ability to use vocabulary. Jackson & McFetridge concluded that children's descriptions of objects indicated patterns of strengths and weaknesses which could be useful in a "hypothesis for teaching (p. 4)." A study was done on "Open Ended Oral Responses" by Nixon et al (1973) with three different groups of children, normal, mentally retarded, and deaf, at three age levels, six, eight, and twelve years. The task requirement was to describe a horse and a birthday. The data provided significant trends in the language behavior among the various groups and between the age levels regarding language power in dealing with various aspects of categories of meaning such as number of categories, qualitative changes within categories, quantity production, dogmatic versus tentative statements, irrelevant responses, and egocentric versus co-operative production.

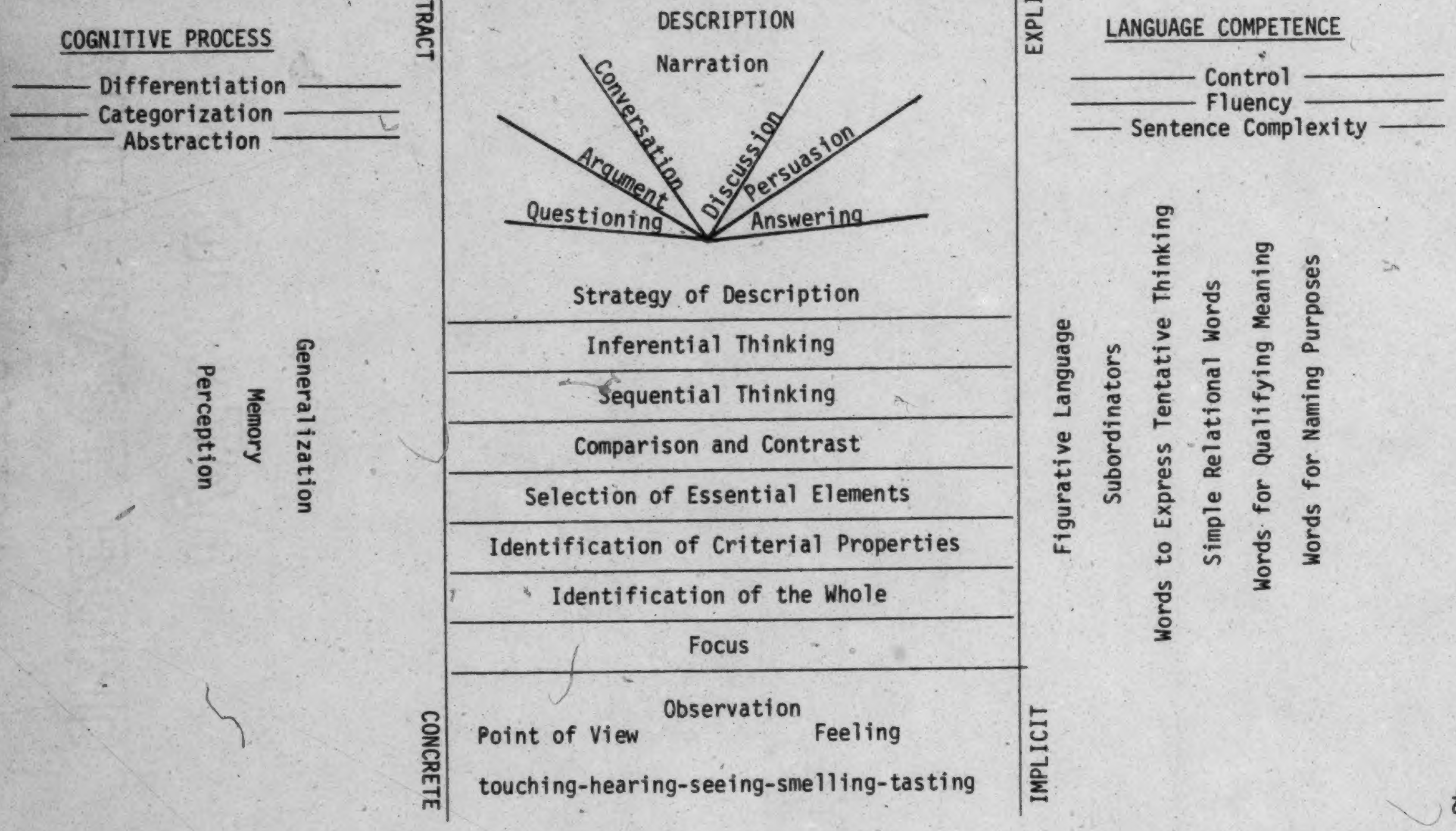
The Model of the Strategy of Description

A conceptual model of the strategy of description was derived from an analysis of Fournier's (1969) and Jackson & McFetridge's (1972) theories on the strategy of description. An examination of the cognitive processes underlying growth in language power and the particular dimensions of growth in language power guided the analysis. The analysis posed two questions: 1. What is description? 2. What is involved in the strategy of description? Figure 2.1 shows the synopsis of the analysis in model form, "A Model of the Strategy of Description."

What is description? The role of description, according to Hennings & Grant (1973), is limited to a narrow role in a particular form of communication which they term "reflection of the world (p. 8)." The intent of this form of communication is to represent accurately objects, materials, persons, events, procedures, and things read and heard as perceived by the observer. Description is

Figure 2.1

A MODEL OF THE STRATEGY OF DESCRIPTION


COGNITIVE PROCESS
Differentiation
Categorization
Abstraction
Generalization
Memory
Perception
ABSTRACT
CONCRETE
DESCRIPTION
Narration
Conversation
Argument
Questioning
Discussion
Persuasion
Answering
Strategy of Description
Inferential Thinking
Sequential Thinking
Comparison and Contrast
Selection of Essential Elements
Identification of Criterial Properties
Identification of the Whole
Focus
Observation
Point of View
Feeling
touching-hearing-seeing-smelling-tasting
EXPLICIT
IMPLICIT
LANGUAGE COMPETENCE
Control
Fluency
Sentence Complexity
Figurative Language
Subordinators
Words to Express Tentative Thinking
Simple Relational Words
Words for Qualifying Meaning
Words for Naming Purposes

one strategy among others, such as reports of happenings, accounts on how to do something, and summaries of perceptions of events designated to this form of communication. The function of description is "a factual enumeration of attributes of an object, material or person (p. 9)." Hennings & Grant do not include description in their delineation of the strategies of communication which suggest relationships or hypothizing and problem solving.

Fournier's (1969) conception of the strategy of description is much more inclusive than that of Hennings & Grant (1973). Fournier (1969) views description to include classification of attributes and comparison of sets of attributes, sequencing of the ideas to establish desired emphasis and meaning, and description of relationships (p. T9). His definition of description includes, "..a report which conveys an image of what has been experienced or imagined (p. T13)."

Description is primarily based on spatial clues (Snortum, 1967; Fournier, 1969; Hennings & Grant, 1973). Snortum (1967) suggests that since the most likely outgrowth of a scene is action, description frequently leads to narration which in writing is the presentation of action (p. 144). Watts (1944), also, proffers that description takes the form of narration since it deals with objects or events remote in space and time as well as those things directly observable (p. 72).

What is involved in the strategy of description? The strategy of description is conceptualized to involve all the dimensions of growth in language power. Fournier (1969) states, "In description, the student describes what he perceives through his senses, what he feels, and what he infers through determining the relationships among objects, events and stages (p. T11)." It is postulated that the strategy of description consists of perceiving the whole of objects and events; abstracting the criterial properties of objects and events; selecting the most essential elements; comparing and contrasting specific properties; sequential and inferential thinking; and organization of the ideas (Fournier, 1969; Jackson & McFetridge, 1972). The effectiveness of description in communication is related to growth along the concrete-abstract continuum in thought and growth along the implicit-explicit continuum in language competence. The representation of the dimensions of growth in language power in description appears in Figure 2.1, "A Model of the Strategy of Description."

The middle section of the model, "Description," represents the progression up the abstraction ladder of those functions of language which are involved in the strategy of description. Above the section, Strategy of Description are some of the functional situations in which the strategy of description may be employed. Each section under Strategy of Description may be referred to as skills in the strategy of description. The skills, then, in the strategy of description are as follows: Focus; Identification of the Whole; Identification of Criterial Properties; Selection of Essential Elements; Comparison and Contrast; and Sequential Thinking; and Inferential Thinking.

On the left hand side of the model are represented the dimensions of growth in language power which are related to the cognitive domain, the concrete-abstract continuum. Abstraction and differentiation are the processes underlying all skill development involved in description from perceptual to conceptual thinking. The elements of abstraction are categorizing of experiences and selection which operate at the levels of perception, memory, and generalization (Moffett, 1968).

The right hand side of the model depicts the facets involved in growth along the implicit-explicit continuum in language competence, the dimension of explicit meaning. Explicitness in the strategy of description requires a large repertoire of words and many ways of putting words together to make meaning precise. Words are needed for naming purposes and for qualifying meaning. Abstract words and words with multiple meanings are needed which indicate relationships, associations, similarities and differences. Beyond the identification of criterial properties, the skills in description involve the expression of relationships of one sort or another - part-whole relations; comparative relations; sequential relations; and relationships of time, place, cause, purpose, result, condition, and concession. Explicitness in the strategy of description requires simple sentences, compound sentences, and complex sentences. Preciseness of meaning is achieved not only through fluency in language, but through flexibility and control in the use of words in sentences, subordination, and in compression of ideas into succinct form

(Loban, 1963; McFetridge, 1973a).

The Skills Involved in Description

The following is an analysis of the cognitive requirements in each skill and the unique function of each skill involved in the strategy of description.

Basic skills. To describe the thinker-speaker must see or observe, and must want the listener to see - as he sees it (Snortum, 1967, p. 136). Several things occur simultaneously at the starting point of any description. The thinker-speaker must observe and perceive in order to provide the sensory data for the content of the description. Simultaneous with this occurrence there must be an understanding of the task, knowledge of what it means to describe, a plan or strategy for how the description will be composed and carried out to its final completion. Jackson & McFetridge (1972) include these simultaneous happenings in focus on the task.

Perception in the initial stages results in the identification of the whole and identification of the criterial properties. Identification of criterial properties implies an understanding of the concepts of the various properties of the things perceived and the relationships which exist among them.

If an accurate communication is to result the speaker must select the most significant elements of the criterial properties of objects or events. Snortum (1967) notes misuse of details which do not serve the purpose of description can have a crippling effect on the communication (p. 141). Selection assumes an understanding of the categorizing system of classes and subclasses, an ability to discriminate the specific and the general, an ability to see the relations of the parts as well as the ability to abstract the parts from the whole, and the number of properties which can be attended to at once (Fournier, 1969, p. 11; Watts, 1944, p. 70).

Since objects and events can be observed from various points of view, point of view, as do feelings, influences the image which is perceived and conveyed in description. The thinker-speaker's growth from subjective behavior toward objective behavior in thought and speech, and his discovery of the effect of point of view and feeling and conscious use of the same, lead to effective description (Fournier, 1969, p. T11).

The first three skills, focus, identification of criterial properties, and selection of the significant elements are basic to any situation, at any level of complexity, involving the strategy of description. Their function is to identify and to define (Fournier, 1969, p. 4 & 68).

Comparison and contrast. To compare and contrast is to examine objects and events for their similarities and differences. Central to comparison and contrast is the abstraction of common features and the ability to identify how the features are interconnected (Hennings & Grant, 1973, p. 18). Inferential thinking is also employed. Hennings & Grant state, "To handle statements of comparison, the thinker-writer must determine how two materials, ideas, or organisms relate to a particular characteristic or attribute (p. 18)."

Another form of difference and similarity is the qualitative analysis of the identified attribute which takes into account "the qualitative differences in the amount of an attribute possessed by related items (Hennings & Grant, 1973, p. 20)." In other words qualitative analysis determines which objects or attributes of objects are bigger, higher, louder and so on.

The function of comparison and contrast is said to provide a "double barrelled" definition (Snortum, 1967, p. 184). Comparison and contrast are used to examine, differentiate and describe objects, activity, time, space, size, position, emotion, feeling, number, and sequence (Fournier, 1969, p. 39). Making comparisons can be extended to figurative language and the expression of consequences (p. 39).

Sequential thinking. The task in sequencing is to determine the order in which something happened or how something is organized. Sequencing requires the identification of the discrete subunits of situations; perception of the relationships of the subunits in a time sequence, in a growth sequence, in a logical sequence, between stages in a sequence of activities, or among positions in a sequence; and assigning a sequential order to the subunits in order of occurrence (Hennings & Grant, 1973, p. 20; Fournier, 1969, p. vii).

Sequential thinking is critical in the coherence of a description. According to Snortum (1967), the essential ingredient of coherence is "time" or order. Control of time is the power of narration, reporting explanation, or story telling (p. 148).

Inferential thinking. Inferential thinking utilizes observable data and jumps beyond observable data. It leads thought from fact to generalization. Generalizations are based on perception of the relationships between the abstracted elements. The thinker-speaker is required to eliminate elements, to put together elements to form a whole, and to combine them in ways that result in patterns and structures not clearly visible before (Hennings & Grant, 1973, p. 23; Fournier, 1969, p. T12).

Inferences are made in all the other skills involved in description.

The strategy of description. Description in a given language situation may include any one, various combinations, or all of the skills involved in the strategy of description. Effective description in communication is contingent upon growth toward abstractness and greater differentiation, organization of the ideas, and ability to express the organized ideas explicitly in words and sentences.

V. SUMMARY

A review of the theoretical and research literature was done in this chapter with regard to the concept of language power and its function in the strategy of description. The concept of language power was developed relative to the interrelationship of thought and language, and its role in children's language needs. Four dimensions of growth in language power were discussed. They were differentiation, abstraction, objectivity, and explicit meaning. The section on growth in word meaning and language structure pointed to specific factors underlying growth in explicitness in communication. A description of the conceptualization of the strategy of description as a measure of children's language power concluded the chapter.

CHAPTER III

CONSTRUCTION OF THE RESEARCH INSTRUMENT

A research instrument, Description: A Measure of Children's Language Power, was constructed by the investigator for this study. The instrument was based on the model of description and consisted of seven descriptive tasks. This chapter describes the design of the instrument, the criteria used in the construction of the instrument, and the construction of the descriptive tasks.

The purpose was to design a comprehensive measure for assessing the individual child's oral language production, in a context approximating functional language situations, which would provide information about the child's growth in language power which could be useful for a "hypothesis for teaching (Jackson & McFetridge, 1972)."

The research instrument was constructed to elicit oral language samples from the individual child in a variety of situations involving the skills employed in description. The descriptive tasks were arranged in order of difficulty, from simple to complex, based on an analysis of what is involved in description and a comprehensive review of the literature relating to child development as it pertains to growth in language power, the cognitive processes and language competencies.

I. THE DESIGN OF THE RESEARCH INSTRUMENT

The design of the research instrument was based on the model, "A Model of the Strategy of Description" which appears in Figure 2.1 in Chapter Two. Five skills selected from the middle section of the model titled "Description" constituted the first five descriptive tasks of the instrument: Identification of Criterial Properties; Selection of Essential Elements; Comparison and Contrast; Sequential Thinking; and Inferential Thinking. Description, descriptive task number six, and Story Telling, descriptive task number seven, were included for the purpose of obtaining samples of the child's strategy in the functional description of objects or events and in the use of description in a functional language situation. The descriptive tasks, comprising the seven sections of the research instrument, were arranged in the following sequential order of complexity:

I. Criterial Properties
II. Selection of Essential Elements
III. Comparison and Contrast
IV. Sequencing
V. Inference
VI. Description
VII. Story Telling

Those skills in the middle section of the model which were not selected for the descriptive tasks, Focus, Identification of the Whole, and Part-Whole Relations, were seen to be essential components of all the selected descriptive tasks. Provision was made in the development of the various tasks to sample language behavior in expression of the point of view of others and in expression of feelings.

Significant findings from the pilot study, which was done with children ages nine, eleven, and twelve years, served in the refinement of the instrument.

II. CRITERIA FOR THE CONSTRUCTION OF THE RESEARCH INSTRUMENT

1. Principles Underlying the Development of the Descriptive Tasks

The three principles underlying the choice and arrangement of the questions in each descriptive task were:

a. Task Requirements
b. Selection of Stimuli
c. Description Requirements

A number of questions used in the study were adapted from the tasks in Fournier's (1969) composition program Description, Thinking and Writing, Level C.

Task requirements. The task requirements took into account the particular cognitive functions and skills represented by the task (e.g. focus, perception of criterial properties, selection of essential elements, seeing the relationships which exist among the component parts, and the organization of ideas). The questions were constructed to sample the level of growth in those functions and skills which were involved in the task and the explicitness in the expression of thought evoked by the question.

Selection of stimuli. The selection of the stimuli for the questions in each descriptive task was based on the cognitive functions and skills conceived to be involved in the particular descriptive task. The selection of the stimuli also determined to a great extent the complexity of the task requirements.

Description requirements. This third principle, "description requirements," was an adaptation of a category in Watt's (1944) English Language Scales, "Description Required" (p. 71). The required descriptions for measuring language age in Watt's study were number of related ideas and kinds of subordinate clauses in the children's descriptive responses.

In the present study, "description requirements," refers to the nature of the child's response. For example, description requirements may consist of the categories of meaning, the expression of relationships, the organization of ideas evoked by a particular descriptive task, and the qualitative level of response.

The possible nature of the anticipated responses to the various questions were given careful consideration in the initial development of the questions. An outcome of one of the objectives of the pilot study was the discovery of significant categories for the analysis of the various descriptive tasks. The discovery of the categories brought into sharper focus the description requirements, furnished support for the efficacy of the questions, and provided direction for the further refinement of the questions for the final study.

2. Level of Complexity

The simple to complex criterion influenced the arrangement of the descriptive tasks in order of increasing complexity as shown in section one of this chapter.

The criterion, simple to complex, was the crucial factor in the final choice and arrangement of questions within each descriptive task. The complexity of the stimuli determined to a great extent the complexity of the questions. The stimuli in the questions appeared in this developmental order: concrete object; picture; and verbal stimuli, from those based on experience to abstract concepts. In the stimuli involving component parts, the stimuli consisting of numerous parts followed those with minimal component parts. Similarily in questions involving more than one stimulus, questions consisting of three stimuli followed questions with two stimuli.

Child development theories outline progressive stages of growth in the way a child relates the experiences of the world from dependence on concrete perceptual data for the preschool child, to dependence on concrete-empirical representations (pictorial or experiences) for the elementary school child to abstract thinking for the adolescent (Ausubel, 1963). In the case of the elementary school child, concrete-empirical data is no longer necessary only in instances when past experience has laid a firm foundation for the understanding of meaning. In situations involving abstract ideas or complex relational propositions, the elementary school child is always dependent on concrete props or may even have to fall back on subverbal concrete or intuitive level of cognitive functioning (p. 116).

A study done by Everett & Armstrong (1968) with three, four, and five year olds showed that concrete representations evoked more meaningful responses from these young children than did pictorial representations (p. 223). Watts (1944) posits that a picture stands midway between the world of objects and events directly observable and the world that exists in memory and imagination (p. 71). The simplest form of thinking is thinking in terms of objects directly observable. The ability to talk about objects or events remote in space or time is a later achievement as is the ability to hold more and more images and ideas together in the mind at one time. This ability develops gradually. Not until the age of eight or nine is the child able to speak of a number of related ideas related to objects or events remote in space and time (p. 287).

Vernon (1962) postulates the capacity to perceive and understand pictures is acquired gradually. By the age of two or three the child can identify and name pictures of single objects. He may be able to say something about the more obvious activities of people in the picture by age seven. The child under eleven years may not be able to understand a picture which suggests events not actually depicted. For example, in the Terman-Merrill Test, the average child under twelve is not able to give meaning to a picture of a telegraph boy whose bicycle wheel has come off and he is waving to a car to stop and give him a lift. Younger children may often fail to notice, or ignore, items in the picture which appear to be central to the main idea of the picture and notice relatively unimportant detail (p. 102).

3. Other Criteria

a. Other criteria in the selection of the various stimuli were to allow for a variety of sensory inputs in addition to the visual - sound, taste, smell, and touch.

b. Scenes evoking feeling and emotion were a criterion in the selection of some of the pictures.

c. The language samples were to be obtained in situations approximating functional language situations. It was deemed essential that the objectives for the administrative procedures include: provision of time for more than a single interview and provision for making the subject cognizant of the purpose of the project, the requirements of the project, and the absence of timing of responses.

III. CONSTRUCTION OF THE DESCRIPTIVE TASKS

In this section an overview will be given of the questions which constitute each descriptive task with emphasis on the general objectives for the task and the rationale for the accompanying instructions for the questions. Table 3.1,"Summary of the Construction of the Descriptive Tasks," presents in detail the manner in which the criteria for the construction of the research instrument guided the development of the tasks and the construction of the questions - the specific task requirements, the nature of the stimuli and the rationale for the selection of the stimuli, and the description requirements for each descriptive task. The research instrument, Descriptive Tasks: A Measure of Children's Language Power, appears in Appendix A as it was presented to the subjects. Pictures of the stimuli are included in the appendix.

I. Descriptive Task Number One: Critical Properties

Four questions constituted the first descriptive task. The overall purpose of the task was to elicit from the subject as much information as he could give about each stimulus, specifically the criterial properties. The stimulus for each question was:

Question #1 - a button (concrete object - colored)
Question #2 - a cap (concrete object - colored)
Question #3 - a dog (picture - colored)
Question #4 - a horse (verbal stimulus - "Describe a horse.")

The accompanying instructions were, "Describe this." In the first question, "Describe this," was followed by, "Tell me all you know about it," to facilitate understanding of the word "describe."

2. Descriptive Task Number Two: Selection of Essential Elements

This task consisted of two questions. The objective of the task was to discover to what degree children are able to set a purpose for description and to achieve the purpose. The procedure was as follows:

Question #1 - The cap from the previous task to be presented to the subject followed by these directions:

> Let's listen to what you said when you were asked to describe the cap. (The subject's taped response in the first task to be played). Let's suppose you found this cap and you were writing a notice to be posted on the bulletin board in the office. What would you say in the notice so the owner could tell it was his cap when he read the notice?

Question #2 - The picture of the dog from the previous task to be presented to the subject followed by these directions:

> Let's listen to what you said when you were asked to describe the dog. (The subject's taped response for the dog in the first task to be played.) Let's suppose this is your dog and that he is lost. You have looked for him and you can't find him anywhere so you decide to put an ad, a notice, in the newspaper. What will you say in the ad so if somebody has found your dog they will know from reading the ad it is the dog you lost?

3. Descriptive Task Number Three: Comparison and Contrast

There were eight questions in this task. The objective was to obtain samples of descriptive language in making comparisons of objects, pictures, and concepts which included sound, taste and smell as well as visual patterns. Two of the questions were designed to tap growth in subjective-objective behavior - point of view and feeling. In the first six questions the directions were simply, "Compare these." In order to facilitate understanding of the word "compare," the directions for the first question were: "Compare these objects. How are they the same and how are they different?" The selected stimuli consisted of the following:

Question #1 - a small brass bell and a medium sized jar containing some jelly beans (objects)

Question #2 - a small plastic container with white talcum powder and the medium sized jar containing some jelly beans (objects)

Question #3 - a toy truck and a toy V. W. van (objects).

The directions were changed for this question in order that the subject might deal with these objects as real vehicles instead of toys as follows:

"Let's suppose these are not toys but actually the real thing. Compare them as though they were the real objects."

Question #4 - a green boot, a navy and red tartan male slipper, and a red and white gym shoe (pictures)

Question #5 - a school and a theatre (verbal - "Compare a school and a theatre.")

Question #6 - a birthday and an anniversary (verbal - abstract concepts - "Compare a birthday and an anniversary.")

The objective in the seventh question was to discover the subject's ability in making a comparison from the point of view of others. The requirement was to compare the boot and slipper, in question #4, from the point of view of an ant.

The comparison in question #8 involved adopting the point of view of others and considering the feelings of others regarding the boot and slipper in question #4. The instructions were, "Let's suppose your father is reading the newspaper. He may be wearing boots or slippers. How would he feel wearing boots, or slippers, while reading the newspaper?"

4. Descriptive Task Number Four: Sequencing

This task consisted of two questions. The intent was to tap two different abilities in ordering events.

Question #1 - A chronological ordering of an event involving priorities. The directions read: "Suppose you and a friend were playing ball in a park two blocks from your home, what would you do if your friend fell and broke a leg while you were playing in the park?"

Question #2 - An expression of sequential relationships among preceding and subsequent stages. The stimuli were two stages in planting a bulb. The requirement was to describe what happened before the first picture, between the two pictures, and after the second picture.

5. Descriptive Task Number Five: Inference

There were six questions in this task. The objective was to elicit from the subject an expression of various relationships in which he was required to make inferences. These were the situations and the questions:

Question #1 - Three objects in a given circumstance. The stimulus was a black and white picture of three cars involved in an accident. The questions: "What happened? What clues did you use to give this answer?"

Question #2 - Individual people in a given circumstance. The stimuli were colored pictures of a teacher, plumber, and a model. The requirement was to tell how the persons earned a living and to give the clues used for the response.

Question #3 - Two people in a given circumstance. (Feelings of others were included in this question.) The stimulus was a black and white picture of a coach bandaging a player's ankle. The questions: "What happened? How does the person feel?"

Questions #4 and #5 - A character, a setting, and an event in a given circumstance.

In Question #4 a story about a train approaching a flooded track and a boy wearing a red scarf was selected to be read aloud followed by these questions: "What would you do if you were Fred? What else might be done?"

#5 asked the question, what might have happened if you a man was boarding up the window of a house?

Question #6 - People, objects, and an event evoking emotion in a given time and place. The selected picture was black and white and showed two men surrounded by a conglomeration of cars in the middle of a parking lot. The questions included: "What will they do now? How do the people feel? How does the picture make you feel?"

6. Tasks Six and Seven: Description and Story Telling

The objective of the final two descriptive tasks was to discover the subject's strategy in functional language situations in describing an event and in telling a story about an event. The event was contained in a picture evoking emotion. The subject was given a choice of three pictures - a fireman fighting a blaze (color); police forming a barricade for a crowd of people (black and white); and a harpist surrounded by children (color).

IV. SUMMARY

The construction of the research instrument was described in this chapter in three sections which included the design of the instrument, the criteria used in the construction of the instrument, and the construction of the descriptive tasks. The summary of the construction of the descriptive tasks is shown in Table 3.1. The research instrument, Description: A Measure of Children's Language Power appears in Appendix A as it was presented to the subjects.

Table 3.1

Summary of the Construction of the Descriptive Tasks

Task Requirements	Stimuli	Description Requirements
	I. Criterial Properties	
Focus Abstraction of criterial properties Identification of criterial properties	1. Concrete object - minimal component parts (button) 2. Concrete object - increasing number of component parts (cap) 3. Picture - object with increasing number of component parts (dog) 4. Verbal stimulus - object with increasing number of component parts (horse)	A. Categories of meaning B. Part-whole relations C. Qualitative levels of categories of meaning and parts of stimuli
	II. Selection of Essential Elements	
Focus Setting a purpose Abstraction of pertinent criterial properties Organization of detail for completion of task	1. Concrete object (cap) 2. Picture (dog)	A. Understanding purpose of task B. Organization for the task C. Selection of essential detail versus irrelevant detail D. Organization sustained throughout the task

Table 3.1 (continued)

Task Requirements	Stimuli	Description Requirements
	III. Comparison and Contrast	
Focus Abstraction of common features	1. Two concrete objects - taste, sound, visual (bell/jelly beans)	A. Organization for task (different-similar or similar-different sequences of interspersion of different-similar)
Classification of abstracted features (same or different)	2. Two concrete objects - taste, smell, visual (powder/jelly beans)	B. Quantity and quality of the abstracted features
Adopting point of view of others	3. Two concrete objects - increasing number of component parts (truck/ V. W. van)	C. Expression of relationships of abstracted features - Listing abstracted features - Reduced comparisons - Statements of comparison (Use of relational terms and comparative words)
Adopting feelings of others	4. Three pictures - three objects (shoe/ boot/male slipper)	
Qualitative analysis (eg. greater, lesser, etc.)	5. Verbal stimuli - objects within child's experiences (school/theatre)	
	6. Verbal stimuli - abstract concepts within child's experiences (birthday/ anniversary)	
	7. Two pictures from Question #4 - point of view of others (ant comparing boot/ slipper)	
	8. Two pictures from Question #4 - point of view and feelings of others (father reading newspaper comparing boot/slipper)	

Table 3.1 (continued)

Task Requirement	Stimuli	Description Requirements
	IV. Sequencing	
Focus Abstraction of discrete subunits of an event	1. Verbal stimulus - logical sequence in time (actions to be taken when friend breaks a leg)	1. A. Arrangement of logical sequence of actions
Perception of the chronological ordering of the subunits	2. Two pictures - two stages in an event (boy planting a bulb)	B. Expression of sequential relationships
Assigning a sequential order to the subunits in order of occurrence		2. Inference and expression of sequential relationships among preceding and subsequent stages: before-between-after
Use of sequencing in describing relationships (temporal)		

Table 3.1 (continued)

Task Requirements	Stimuli	Description Requirements
	V. Inference	Use of inference in expression of relationships between:
Focus Abstraction of elements in a situation	1. Picture - objects in a given circumstance (car accident - 3 cars)	1. Objects in a given circumstance
Perception of relationships between abstracted elements	2. Three separate pictures - individuals in a given circumstance (teacher, plumber, model)	2. Individuals in a given circumstance
Provision of information not contained in stimulus but based on abstracted elements and perceived relationships	3. Picture - two people in a given circumstance (injured player and coach bandaging player's ankle)	3. Two people in a given circumstance (Feelings of others)
Point of view of others	4. Story read aloud; 5. Verbal stimulus - character setting, and event in a given circumstance (4. train, flooded tracks, boy with red scarf; 5. man boarding up window of a house)	4. &5. A character, setting, and event in a given circumstance
Feelings of self and others	6. Picture evoking emotion - people, objects, and event in a given time and place (2 persons surrounded by conglomerate of cars)	6. People, objects and event in a given time and place. (Feeling of others. Subject's reaction to emotion in picture)

Table 3.1 (continued)

Task Requirements	Stimuli	Descrption Requirements
	VI. Description	
Focus Identification of whole Selection of essential elements Comparison and contrast Sequencing Inference Organization of ideas	Picture evoking emotion - people, objects, and an event in a given time and place (choice of one - fireman fighting a blaze; policeman forming a barricade for a crowd of people; young girl surrounded by children playing autoharp outdoors)	A. Number of relevant ideas B. Organization of the description C. Expression of relationships
	VII. Story Telling	
Same as #6 Description	Same as #6	A. Title B. Plot C. Organization (introductory sentence, sequencing of ideas, ending) D. Expression of relationships

CHAPTER IV

DESIGN OF THE STUDY

This chapter includes a discussion of the student sampling procedures; the research instrument; the data collection procedure; the analytic procedures; the reliability of the analysis; and the pilot study.

I. POPULATION

The population for the study was the boys and girls in two different age groups in one elementary school in Winnipeg, Manitoba. The children in age Group One ranged in age from eight years six months to nine years five months. Age Group Two consisted of children whose ages ranged from eleven years six months to twelve years five months. These two age groups were chosen because they represent two important stages in growth. The school from which the samples were drawn was selected by the Winnipeg School Division Number One. The school population of the selected school was identified by administrative personnel as middle socio-economic status.

II. SAMPLE

Four groups, a total of sixteen subjects comprised the sample of the study. There were two age groups. Two language groups were established within each age group. The children in each of the two age groups were classified as either average language users or high language users by the classroom teachers according to the children's performance in the language arts subjects as of the first of May. Outstanding language users were not included in the study. The four groups were established, average and high language users in each age group. The teacher's rating was checked against the child's achievement as reported on the cumulative record card for the previous grades. Any child who showed previous performance inconsistent with the teacher's rating, either higher or lower, was replaced in the sample by random selection.

A description of the sample is shown in Table 4.1.

III. THE RESEARCH INSTRUMENT

The instrument used in the study was the research instrument, Description: A Measure of Children's Language Power. The instrument consisted of seven descriptive tasks:

Criterial Properties
Selection of Essential Elements
Comparison and Contrast
Sequencing
Inference
Description
Story Telling

The construction of the instrument was described in Chapter Three. The seven descriptive tasks were administered to the individual subject by the investigator. The subject's responses were taped and

Table 4.1

Description of the Sample

Group	Subject	Age	Grade
Average Language Users (C.A. 8-6 to 9-5)			
I (Y-A)	1 (M)	9-2 years	3
	2 (M)	9-0 years	3
	3 (F)	8-8 years	3
	4 (F)	9-2 years	3
High Language Users (C.A. 8-6 to 9-5)			
II (Y-H)	5 (M)	9-1 years	3
	6 (M)	8-10 years	3
	7 (F)	9-1 years	4
	8 (F)	8-10 years	3
Average Language Users (C.A. 11-6 to 12-5)			
III (O-A)	9 (M)	11-6 years	6
	10 (M)	11-7 years	6
	11 (F)	12-2 years	6
	12 (F)	11-7 years	6
High Language Users (C.A. 11-6 to 12-5)			
IV (O-H)	13 (M)	12-1 years	6
	14 (M)	11-10 years	6
	15 (F)	12-3 years	6
	16 (F)	12-1 years	6

[a] Age was measured to the nearest month as of May 1.

transcribed by the investigator, and a subjective analysis was done.

Group intelligence test scores were obtained from the school cumulative record cards.

IV. TESTING PROCEDURES FOR THE STUDY

Data collection began on the seventh of May and continued four days a week for three weeks.

The investigator met with each subject in four different sessions. The research instrument was administered to the individual subject in two separate interviews a week apart, in the last two sessions.

In the two preliminary sessions the investigator met with the subjects, in groups the first time and individually the second time, for the purpose of establishing rapport. The sessions were approximately a half an hour in length.

The administration of the research instrument was begun in session three. The following descriptive tasks were presented: _Criterial Properties_; _Selection of Essential Elements_; and _Comparison and Contrast_. As an introduction to the testing procedure, the subjects were requested to tell a story of a memorable experience or event at the beginning of this session. The story was taped and replayed. The purpose of this exercise was to familiarize the subject with the nature of the forthcoming tasks and with the use of the tape recorder. Testing time was approximately one hour.

Administration of the research instrument was completed in the fourth session. These sections were presented: Sequencing; Inference; Description; and Story Telling. Testing time was approximately one hour.

The procedure for the presentation of the seven descriptive tasks for each subject was consistent with the outline and directions for administration as it appears in Appendix A. Instructions and questions were read as they appear in the outline. The decision had been not to ask additional questions. However, one of the criteria for administration was that the subject have a clear understanding of the task. Instructions were repeated and additional questions were posed in a few instances to facilitate clearer understanding of the task.

V. ANALYSIS OF DATA

The oral language samples elicited in the descriptive tasks were subjected to a subjective analysis. The categories for the analysis of most tasks were based on the description requirements which were established for each task in the construction of the research instrument. The criteria for analysis of the various categories were determined by the task requirements of the individual skills and by the specific information in the responses. The analysis of the first five descriptive tasks focused mainly on trends in frequency distributions, qualitative patterns, and the nature of the speech behavior. The data were examined for trends and patterns in the four groups, the two age groups, and in the average and high language groups within an age group.

The performance of two subjects in "Description" and "Story Telling" was subjected to analysis in the form of case studies and related to their performance in the five descriptive tasks.

VI. RELIABILITY OF ANALYSIS

The categories and criteria established were validated with reference to two experts. The validated categories and criteria were then judged for all responses by a second judge and any disagreements resolved.

VII. PILOT STUDY

Prior to the initiation of the main study a pilot study was conducted with the two different age groups for the following purposes:

To assess time limits for the administration of the seven sections of the descriptive tasks.

To allow for trial administration of the seven descriptive tasks with nine year old children and twelve year old children.

To determine suitability of the tasks for the younger and older children.

To observe the children's reactions to the tasks.

To discover significant categories within the various sections for the analysis of the data.

The tasks were presented in two different individual interviews to two nine year old boys and one nine year old girl from a school in Leduc, Alberta in February. With a few minor changes the tasks were presented in single interviews to two eleven year old boys, one eleven year old girl, and one twelve year old girl from various schools in Edmonton, Alberta in April.

VIII. SUMMARY

This chapter has presented an outline of the procedures, the selection of the subjects, the research instrument, and the procedures in the data collection. The methods used in the analysis of the data and the reliability of the analysis were presented. A description of the pilot study concluded the chapter.

CHAPTER V

ANALYSIS AND FINDINGS OF THE FIRST FIVE DESCRIPTIVE TASKS

An exploratory study was done of children's language behavior in the five skills conceptualized to be involved in the strategy of description and in two functional language situations involving the strategy of description. This chapter provides the analysis and findings of the five skills involved in description, the first five descriptive tasks of the research instruments: Criterial Properties; Selection of Essential Elements; Comparison and Contrast; Sequencing; and Inference. The analysis of the data and the presentation of the findings are discussed in seven major sections. The description of the organization of the analysis of the data and of the sample is presented in section one. The analysis of the data and the findings of each descriptive task are reported in this order: Section Two - "Criterial Properties"; Section Three - "Selection of Essential Elements"; Section Four - "Comparison and Contrast"; Section Five - "Sequencing"; and Section Six - "Inference." A summary of the analysis and results of the first five descriptive tasks concludes the chapter.

I. INTRODUCTION

The first five descriptive tasks, ranging in graded order of difficulty, were constructed to elicit language samples from children in a variety of situations involving the skills employed in description. The development and arrangement of the questions, in order of complexity, for each descriptive task were guided by three principles: task requirements, selection of stimuli, and description requirements. These three principles were derived from an analysis of what is involved in each descriptive task and the developmental aspects suggested in the literature.

The description requirements formed the basic categories for the analysis of the individual descriptive tasks. Criteria established for the analysis of the various categories were based on the task requirements and, to some extent, on specific information in the responses. The dimensions of growth in language power which were discussed in Chapter Two, differentiation and hierarchical integration, abstraction, objectivity, and explicitness in meaning, formed the theoretical background for the analysis.

The organization of the analysis of the data and the discussion of the findings varied according to the nature of the tasks and the description requirements. Three major approaches constituted the analysis of the responses in the descriptive requirements:

1. Individual and group responses were tabulated and examined for patterns of frequency with regard to the concrete-abstract dimension.
2. The nature of individual and group responses was analyzed for qualitative patterns regarding the concrete-abstract dimension and the implicit-explicit dimensions.
3. The nature of the speech behavior was examined for trends in growth in the implicit-explicit dimension.

The subjects for the study were sixteen children in two age groups: age Group One ranging in ages eight years six months to nine years five months and age Group Two which ranged in age from eleven years six months to twelve years five months. Each age group consisted of two groups, average language users and high language users. The characteristics of the groups are shown in this summary:

	Average Language Users	High Language Users
C.A. 8-6 to 9-5	Group I (Y-A) (2M & 2F)	Group II (Y-H) (2M & 2F)
C.A. 11-6 to 12-5	Group III (O-A) (2M & 2F)	Group IV (O-H) (2M & 2F)

The analysis focused on trends and patterns in the four groups, the two age groups, and in the average and high language groups within an age group. Patterns were noted for individual performance whenever the findings pointed in that direction.

II. CRITERIAL PROPERTIES

The content of a description is the sensory data which has been observed and perceived. Perception in the initial stages results in the identification of the whole and identification of the criterial properties. The function of the identification of criterial properties is to identify and define the sensory data (Fournier, 1969, p. 4). Identification of criterial properties implies the abstraction of those physical attributes and parts of stimuli which are essential to the identification of an object or event, and an understanding of the categorizing system of the properties of the things perceived and the relationships which exist among them (Vernon, 1962, p. 29; Fournier, 1969, p. 11).

The purpose of the first descriptive task, "Criterial Properties," was to elicit from the subject as much information as he could give about each of the four stimuli, the button, the cap, the dog, and the horse. The specific objective was to discover the number and kinds of criterial properties which would be identified. Three major categories, based on the description requirements, formed the basis for the analysis of the responses to the four questions of increasing complexity in this descriptive task: categories of meaning, part-whole relations, and qualitative levels of the categories of meaning and parts of stimuli.

1. Categories of Meaning

Payne (1972) states, "A word does not refer to a single object but to a group or class of objects (p. 15)." Thus a word identifying a criterial property represents a group or class of properties which may be referred to as categories of meaning. "Categories of meaning" then refers to a categorizing system of criterial properties such as time, space, shape, color, weight, texture, and so on.

The properties which were noted by the subjects were analyzed in the light of the categories of meaning they represented. For example, all responses referring to roundness, squareness, and so on were collected under the category of shape. The categories of meaning in the individual responses were tabulated and examined for frequency of occurrence.

In Table 5.1 is presented the number of different categories of meaning identified by the individuals for each of the four stimuli. The only pattern appearing in the frequency distribution is the greater number of categories identified for stimulus one in comparison to the other stimuli. The table shows a variation in total number of categories of meaning identified within each group and in each of the stimuli. The variation in total number of categories of meaning is shown more clearly in these mean scores of categories of meaning for each group in each question:

	Button	Cap	Dog	Horse
Group Y-A	5.5	4.0	2.3	4.0
Group Y-H	6.3	4.0	3.3	4.3
Group 0-A	7.3	4.3	4.3	5.3
Group O-H	7.0	5.0	5.3	5.8

The mean number of categories were higher for the first stimulus, the button, than for the other stimuli. The level of complexity of the stimuli may account to some degree for this difference. The criterial properties of the horse, dog, and cap may have been more difficult to identify than those of the cap. Also, the button did not have as many component parts as the other stimuli and, therefore, the subjects may have named a variety of the component parts of the cap, dog and horse which are not accounted for in this

Table 5.1

Number of Different Categories of Meaning
by Subject and Stimulus

Group	Subject	Stimulus			
		Button	Cap	Dog	Horse
Y-A	1	7	5	2	4
	2	4	3	1	2
	3	7	5	3	5
	4	4	3	3	5
Y-H	5	5	3	6	5
	6	3	3	2	5
	7	11	6	2	6
	8	6	4	3	1
O-A	9	5	4	3	4
	10	8	5	5	5
	11	8	4	6	9
	12	8	4	3	3
O-H	13	9	6	5	8
	14	5	4	5	4
	15	9	6	7	6
	16	5	4	4	5

particular tabulation. However, the possibility that the introduction to this descriptive task, which suggested the various ways one might describe an object, influenced the performance in the first question and subsequently diminished in the others.

The mean number of categories of meaning show an increase in number of categories identified from Group Y-A to Group O-H which suggests that identification of criterial properties increases with increasing age and may be higher in number in cases of greater language facility within an age group.

The greatest discrepancy between the two age groups exists in the number of categories of meaning identified for the dog. This stimulus was a picture of a dog in which the dog was the dominant figure. An examination of the subjects' responses for the dog showed that three subjects in Group Y-A, one subject in Group Y-H, and two subjects in Group O-A attended to the background as much as, or even more than, to the dog. Vernon (1962) states that younger children may often fail to notice, or may ignore, items in the picture which appear to be central to the main idea of the picture and notice relatively unimportant detail (p. 102). It should be noted that since two subjects in Group O-A gave at least as much attention to the background of the picture as they did to the dominant figure, the dog, lack of focus on detail may also be a function of language facility.

Among the last three stimuli, the cap, the dog, and the horse, there was an overall increase in number of identified categories of meaning for the horse with the exception of Group Y-A. It may be that due to the abstractness of the verbal stimulus, responses were not restrict[illegible] to the perception of sensory data and selection of criterial properties operated at the level of memory and generalizations of previous abstractions which resulted in the production of a greater number of categories of meaning (Moffett, 1968, p. 22). Lundsteen and Michael (1966) indicated that more difficult material stimulated more complex operations in their samples of grade three children. Grant's (1972) results in a study with grade six children were similar to those of Lundsteen and Michael.

Tables 5.2, 5.3, 5.4, and 5.5 show the kinds of categories of meaning identified for each stimulus and the number of subjects in each group who identified a particular category of meaning. Table 5.6 provides a summary of the distribution of the categories of meaning for the four stimuli which were identified by all of the groups (four), by three groups (any combination), by the two younger groups, by the two older groups and by the two high language groups. The summary did not show any patterns of response with the exception that color, size, use, part-whole relations, and class names were the most frequently identified categories of meaning.

2. Part-Whole Relations

The occurrence of numerous parts of the stimuli in the responses necessitated an analysis of performance in the particular category of meaning, part-whole relations. The parts of the stimuli specified by the individuals were tabulated and examined for frequency

Table 5.2

Number of Subjects Identifying Selected Categories of Meaning: The Button

Categories of Meaning[a]	Group Y-A	 Y-H	 O-A	 O-H
color	4	4	4	4
shape	2	3	3	3
size	1	1	3	2
texture	2	3	1	2
composition	1			2
weight	2	1	2	1
taste			1	
smell		1		1
sound		1		
actions				
qualities		1	1	2
use	2	3	3	4
function				
part-whole	4	3	4	2
where it lives				
class names or others of same class	3	2	4	4
connotation	1	2	2	2
variety of contexts in which known			1	
synonym				
concept of which it is part				
Total number	10	12	12	12

a. Categories were selected prior to examination of responses

Table 5.3

Number of Subjects Identifying Categories of Meaning: The Cap

Categories of Meaning	Group Y-A	 Y-H	 O-A	 O-H
color	3	4	4	4
shape		3		
size			2	1
texture				
composition	2			1
weight		1	1	1
taste				
smell				
sound				
actions	1			
qualities			1	
use	2	2		3
function	1			1
part-whole	4	4	4	4
where it lives				
class names or others of same class	3	2	4	4
connotation			1	1
variety of contexts in which known				
synonym				
concept of which it is part				
Total number	7	6	7	9

Table 5.4

Number of Subjects Identifying Selected Categories of Meaning: The Dog

Categories of Meaning	Group Y-A	 Y-H	 O-A	 O-H
color	3	2	3	4
shape				
size		1	2	2
texture		2	1	2
composition				
weight				1
taste				
smell				
sound				
actions	1		1	1
qualities		2	2	2
use				1
function				
part-whole	3	3	4	3
where it lives				
class names or others of same class	3	1	4	4
connotation		2		2
variety of contexts in which known				
synonyms				
concept of which it is part				
Total number	4	7	7	10

Table 5.5

Number of Subjects Identifying Selected Categories of Meaning: The Horse

Categories of Meaning	Group			
	Y-A	Y-H	O-A	O-H
color	1	2	4	4
shape				
size		3	2	2
texture			1	
composition				
weight				1
taste				
smell				1
sound				
actions	3	3	3	2
qualities	2	1	3	2
use	3	2	2	3
function			1	
part-whole	4	3	4	3
where it lives				
class names or others of same class	3	1	1	1
connotation		1	1	1
variety of contexts in which known		1	1	
synonym				
concept of which it is part				2
Total number	6	9	11	11

Table 5.6

Summary of the Categories of Meaning Noted by Various Groups

Number Groups	Button	Cap	Dog	Horse
4	color shape size texture weight use part-whole class names connotation	part-whole class names	part-whole class names	action qualities use part-whole
3	qualities	weight use	size texture qualities	size connotation
Y-A Y-H	actions	sound		
O-A O-H	taste variety of contexts	size qualities connotation	weight use	weight smell function
Y-H O-H	smell		connotation	

of occurrence according to subjects and stimuli.

In Table 5.7 is presented the number of different specified parts for each stimulus by each subject. The table shows a greater number of specified parts for the last three stimuli than for the first stimulus. The last three stimuli had more component parts than the first stimulus. The variation in specification of the number of parts of each stimulus is shown in these mean scores for each group:

	Button	Cap	Dog	Horse
Group Y-A	1.8	4.0	2.0	2.5
Group Y-H	1.8	3.8	4.0	5.0
Group O-A	1.5	4.0	6.3	5.3
Group O-H	2.0	5.5	5.0	4.5

A comparison of the mean number of specified parts of stimuli and the mean number of identified categories of meaning shows that most groups identified as many parts of stimuli as categories of meaning in the cap, the dog, and the horse. This then confirms the earlier observation that number of component parts of a stimulus may have influenced the difference between the high total number of identified categories of meaning for the button as compared to the other stimuli. The subjects seem to have focused on the parts of stimuli which had more components, and thus ignored some other categories of meaning.

The mean scores of the specified parts of stimuli tend to show variation in the groups for each question rather than a progressive increase in total number of specified parts from Group Y-A to

Table 5.7

Number of Different Parts of Stimuli by Subject and Stimulus

Group	Subject	Stimulus			
		Button	Cap	Dog	Horse
Y-A	1	3	5		2
	2	1	5		4
	3	1	3	7	1
	4	2	3	1	3
Y-H	5	5	7	10	12
	6	1	3	4	2
	7	1	4		
	8		1	2	6
O-A	9	1	4	7	6
	10	1	3	4	4
	11	2	4	8	6
	12	2	5	6	5
O-H	13		5		
	14	2	5	5	3
	15	4	7	11	10
	16		5	4	5

Group O-H. However, it is noted that in the case of the dog and the horse, the Group Y-A mean scores were considerably lower than the other groups. There also appears to be a trend toward higher mean scores for the older groups than for the younger groups.

Table 5.8 provides a summary of the specified parts of the four stimuli which occurred in the responses of the sixteen subjects. The specified parts which have been starred were those not noted by Group Y-A. The specified parts which have been starred were scattered throughout the responses in Group Y-H, Group O-A and Group O-H. Apart from suggesting that Group Y-A did not attend to as great a variety of component parts as did the other groups, this summary does not yield any pertinent information regarding a difference in abstraction of complexity of parts between those abstracted by Group Y-A and the other groups.

Fournier (1969) points to the importance of the ability to observe and communicate how a part of an object is described in relation to the whole for effective description (p. T11). An examination of the subjects' responses for the four stimuli revealed that for each stimulus the subjects in all of the four groups listed parts of the whole object and made an attempt to relate some parts to the object. The following are selected samples which illustrate the subjects' attempts to relate the parts to the whole object:

Group Y-A

button:
"Has one hole to thread it with."

Table 5.8

Parts of Stimuli Noted by Subjects

Button	Cap	Dog	Horse
edges	metal air holes	mouth	tail
color of parts	elastic band	nose (muzzle)	hoofs
steel hole (thread)	sun shade	cars	legs
Center Section of button	stitching	legs	hair
*ridges	button on the top	tail	mane
*smooth back	label-made in China	beard	nose
	plastic sweat band	eyes	ears
	variety of colors	*tongue	*teeth
	details inside of cap	*feet	*body
	ribbon inside the cap	*face	*face
	*six sections of the cap	*paws	*eyes
	*net material inside the cap	*fur	*neck
		*paws	*nostrils
			*feet
			*manure
			*mouth
			*horseshoes
			muscles

*Parts not identified by any subject in the Y-A Group.

cap:
"It's got elastic rim around the back......"
"It's got a little button at the top."
"It has a piece of metals going around it."

horse:
"They give you glue from their hoofs."
"And they show their muscles when they run."
"A horse has a mane on it."

Group Y-H

button:
"It's little metal hole to hold it on a coat."
"Around the sides it's soft too."

cap:
"It's got a rubber elastic to keep it on your head."
"And it's got some beige around it."
"It's got a button on the very top."
"And it has a thing sticking out in front to keep the sun out of your eyes and a little button on the top."
"And sort of a dome shape with a semi-circle in the front."

dog:
"It's shaggy on the muzzle."

horse:
"Some horses have big white stripes going up their head."
"And its tail is just like its mane but just hanging down."
"And has two sort of round nostrils near to the end of the nose."

Group O-A

button:
"It has a hook on the back."

cap:
"It's got air holes on top."
"And it's got elastic on the back of it and so it won't fall off when you're playing baseball."
"Has elastic around the back to make it stick on your head... to make it keep on your head."

dog:
"At the back, it's got very long legs - back hind legs."
"And the hind feet are longer than the front feet."

horse:
"It's got a long mane on its back."

Group Y-H

button:
"On the bottom it has a hook for the thread to go through and hook onto the coat."
"It has a very smooth back on it."
"And it has a glass in the middle."

cap:
"It has a piece of elastic at the back of the cap."
"It has holes on the top for the sweat to come through or something, or air to go through."
"The top part of it has a button."

dog:
"The fur is quite close to his body except for his legs - it's sort of fluffy there."
"It's tail's sticking up at the back."

horse:
"They have a mane at the back of their head."
"Well it has sort of a big nose. It sticks out of the its head."

Since the selection of samples was not made for the specific purpose of comparing growth in ability to express part-whole relations within the groups, a comparison of this nature would be invalid. However, an overview of the above selected samples shows a tendency toward greater precision with words and an increase in information about a specified part from Group Y-A to Group O-H. For example, these were the changes noted in explicitness in the expression of the part-whole relations of the elastic at the back of the cap: "It's got elastic rim around the back.." (Group Y-A); "It's got a rubber elastic to keep it on your head." (Group Y-H); "And it's got elastic on the back of it and so it won't fall off when you're playing baseball."

(Group O-A); and "It has a piece of elastic at the back of the cap." (Group O-H).

3. Qualitative Levels Within Categories of Meaning

Qualitative levels within categories of meaning refer to growth along the implicit-explicit continuum in communicating the criterial properties which were observed. Qualitative levels take into account McFetridge's (1973a) hypotheses regarding directions of growth in word meaning and directions of growth in language structure and Jackson's (1970) description of changes in the depth of meanings of words which were discussed in Chapter Two. McFetridge (1972) also draws attention to the developmental factor of distinguishing fine differences and the use of words which are "apt" to show differentiation like "rough" and "smooth"; "round"; or "square" and so on (p. 25). She notes that when children differentiate fine differences by saying "sorta rough"; "kind of round, but more like an egg"; or "sort of longish," they are involved in making finer cognitive distinctions, in really "seeing" fine differences (p. 25).

In this study, an analysis was done of qualitative changes in individual responses in the various groups with regard to identified categories of meaning and specified parts of stimuli. Those identified categories of meaning and specified parts of stimuli which had clusters of responses were selected for the analysis. The following categories of meaning were selected for an analysis of qualitative changes:

color - button, cap, dog
shape - button
size - button, cap, dog, horse
texture - button, cap, dog, horse
weight - button, cap, dog, horse
use - button, cap, dog, horse
class name - button, cap, dog, horse

The following specified parts were selected for an analysis of qualitative changes:

button - the steel shank on the back of the button
cap - the air holes
- sun shade or peak

A three level implicit-explicit continuum was established to discover patterns of qualitative levels for the responses by the various groups. This was the continuum:

Implicit——————Implicit-Explicit——————Explicit

The middle stage represented that particular stage of expression of meaning which reflected differentiation of the finer psychological distinctions but the lack of a precise label; growth but an instability in categorizing behavior regarding depth of meaning of words, and developing but an unstable repertoire of words.

The criteria for the classification of responses were based on McFetridge's (1972, 1973a) differentiation in use of labels and directions of growth in word meaning and language structure and Jackson's (1970) conception of changes in depth of meaning of words. The critical criteria were the degree to which the words or clusters of words communicated precise meaning of thought and reflected power over language.

In Tables 5.9 through 5.18 are presented the analysis of the qualitative levels of the subjects' identified categories of meaning in the various selected categories and component parts. Two major patterns of qualitative levels in the subjects' responses are revealed in the tables. Some responses of all the groups fall within each of the three ranges. In the second pattern there is a gradual shift of clusters of Group Y-A and Group Y-H responses in the implicit range, to a concentration of responses of the four groups in the implicit-explicit range, to clusters of Group O-A and Group O-H responses in the explicit range.

There tend to be more Group Y-A and Group Y-H responses in the implicit class than Group O-A and Group O-H responses and more Group O-A and Group O-H responses in the explicit class than Group Y-A and Group Y-H responses. More Group Y-H responses than Group Y-A responses appear in the explicit class. A number of tables show a concentration of responses of all four groups in the middle range.

It is possible that abstractness of a criterial property or part-whole relation, or level of abstractness in the verbal expression of the identified category of meaning accounted to some extent for absence of responses in the implicit range for the younger groups

Table 5.9

Qualitative Levels of Responses: Color of Button, Cap, Dog

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	button "brown" (2)	button - "brown grayish" - "light brown" cap - "yellowish gold"	
Y-H	cap "yellow" (2)	button - "browny color" "sort of brownish" cap - "yellow and some biege around it"	button - "brown sort of tanny mauve
O-A	button - "brown" cap - "yellow"	button - "brownish" - "looks like gold or silver in the middle" cap - "yellowish gold" - "yellowish organge"	button - "biege, ginger purple" - "the biege brown which gets lighter at the center--almost has a butterscotch color" cap - "gold" dog - "tannish color" - "face is a biegy tan color"
D-H	button - "brown" cap - "yellow" (3)	cap - "goldish yellow"	button - "dark brown tan" - "two-toned--dark brown and biegy depends on which way you turn it" - "brownish biege"

Table 5.10

Qualitative Levels of Responses: Shape of Button

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	"circle sort of inside" "bottom's flat"		"round" "round"
Y-H	"and there's another round on the other side"	"sort of round"	"round" "round" "like a miniature pancake"
O-A	"it's circling" "shelves in it kind of"		"round" "round" "round" - reminds me of a wheel on a little towing truck "round"
O-Y	"a little groove in the front--a little circle and then it goes out from the rest"		"round" "a circle in the middle" "round" "circular in form"

Table 5.11

Qualitative Levels of Responses: Size Regarding Button, Cap, Dog, Horse

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A		cap - "got elastic rim around the back so it'll probably fit everyone" button - "a good sized button"	
Y-H		dog - "a tiny little bit littler than a desk" horse - "the horse is tall" horse - "they sort of look like maybe an oversized dog"	
O-A	dog - "not quite not too big" button - "right size"	horse - "sometimes small; sometimes big"	button - "fairly big" button - "about an inch in diameter" horse - "most horses are about five feet, no a little taller than five feet from its head to the ground" cap - "looks like a hat would fit --a fairly big head"
O-H	cap - "can be used on almost any head"	button - "quite large" dog - "quite small"	button - "about an inch in diameter" horse - "size from four feet to six or seven feet high, a big range" button - "about an inch in diameter"

Table 5.12

Qualitative Levels of Responses: Texture Regarding Button, Cap, Dog, Horse

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A		button - "rough edges"	
Y-H	button - "feels soft" dog - "skin is fluffy"	button - "a little bit in the middle it's a little bit rough" dog - "it's furry"	button - "sort of glossy shiny in the middle part and rough around the sides" button - "it's smooth" dog - "shaggy on the muzzle" "shaggy legs"
0-A		dog - "furry legs and body" dog - "it's got hair that's quite...fluffy curly"	button - "smooth in some places and rough in some"
0-H		button - "feels like plastic" dog - "fur is quite close to his body except his legs - it's sort of fluffy there"	button - "sort of rough on the second circle in the front" button - "smooth back on it"

Table 5.13

Qualitative Levels of Responses: Weight of Button, Cap, Dog, Horse

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	button - "not very heavy"	button - "weighs about a quarter pound"	
Y-H		cap - "weighs about a pound"	button - "weighs a couple of ounces"
O-A	button - "isn't very heavy"	horse - "some horses are skinnier and heavier"	button - "light weight"
O-H	button - "not too heavy" dog - "about a third of an ounce"		button - "about a tenth of an ounce" cap - "about a quarter of an ounce to an ounce"

Table 5.14

Qualitative Levels of Responses: Use of Button, Cap, Dog, Horse

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	button - "helps you put your clothes together" button - "used to put on coats"	cap - "used for hunting or maybe baseball" cap - "it keeps dirt off your head"	cap - "baseball guys use it a lot" horse - "you can ride them with a saddle or bare back" horse - "to pull a wagon" horse - "used for farming and horse races"
Y-H		button - "it holds clothes together" horse - "good things to go horse back riding on"	button - "use it to clasp together a coat" horse - "used for horse racing" - "used for pulling" - "used for riding horse back" button - "sew it on slacks or dress to do it up so that there's not just a big split down the middle" cap - "usually used to play certain sports" cap - "you were it on your head"
O-A		button - "part of a shirt or jacket" horse - "not a house pet--like four out at a farm"	horse - "some are made for work, some are for show work, some are for jumping" button - "used to fasten things like on a coat or sweater"

Table 5.14 (continued)

Group	Implicit	Implicit ↔ Explicit	Explicit
O-H	dog - "useful dog". cap - "It's used to keep on your head."	horse - "a very useful animal" button - "used for coats and like any objects you wear to do up" cap - "And people sometimes they just wear it and baseball players wear them."	button - "It's used on coats and things like that to do up things and sometimes just for decoration" button - "used to hold clothing together" cap - "It's to protect you from hot weather - (playing baseball) "don't get the sun in your eyes" dog - "can be used as a watch dog" horse - "used for transportation, farming" - "different breeds of horses such as work horses, draught horses, ---horses pull heavy artillery" - "used for riding and pulling things" - "used in sports a lot" dog - "nice pet to have around the house" horse - "can ride it with a saddle or--bareback" - "used in shows and races" "nice pet" "people use them in races"

Table 5.15

Qualitative Levels of Responses: Class Name of Button, Cap, Dog, Horse

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	button - "it's" cap - "it's"	"cap" (2)	"horse - "some of them are white stallions" "button" (3) "cap" "dog" (3) cap - "baseball cap" horse - "baby ponies are called colts or ponies"
Y-H	button - "it's" (2) cap - "it's" dog - "it's" (2) "he's" cap - "it" dog - "it"	"cap"	"button" (2) "dog" "shank button" horse - "some are stallions" - "palominos" - "bronco busters" cap - "baseball cap"
O-A			"button" (3) "baseball cap" (3) "baseball hat" "hook button" "dog" (3) "a terrier dog"
O-H		"cap of some sort" "cap"	"baseball cap" "dog" (3) "terrier" "button" (3) "Scottish terrier"

Table 5.16

Qualitative Levels of Responses: Steel Shank on Button

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	"piece of metal there"	"has one hole to thread it with"	"There's a little steel hole in the bark."
Y-H	"has a thing for the button which put the thing on" "a little white spot on the bark"	"metal hold it on a coat" "a thing on the bark that you can sew it on with ....shank button"	
O-A		"has a steel thing sticking out at the end so you can sew it on your coat"	"has a hook in the back" "has a hook on the back"
O-H			"has a hook for the thread to go through and hook onto the coat" "has a little hook on the bark for ...some thread to go through it to put on, like a coat or anything like that"

Table 5.17

Qualitative Levels of Responses: Air Holes in Cap

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	"has piece of metals going around"	"It's got little steel holes"	
Y-H	"It has metal on it."	"has little round things at the top--sort of to get fresh air" "has little holes in it on the top"	
O-A		"six holes in it--so the sweat can get out" "It has little steel things so your head won't get hot." "some little little holes in it"	"It's got air holes--on top."
O-H	"a little piece of metal in each section"		"It has different holes--in the hat so make air come through so you won't get sweaty." "holes on the top for just--like the sweat to come through or something or air to go through" "Each part has a hole with a silver thing around it to let in the air."

Table 5.18

Qualitative Levels of Responses: Sun Shade on Cap

Group	Implicit	Implicit ↔ Explicit	Explicit
Y-A	"Its front is made of cardboard."		
Y-H	"It's a flap out in front."	"Has a thing sticking out sort of to keep the sun out of your eyes." (2) "It's a flop to keep the sun out of your eyes."	
O-A		"a rim to keep the sun out of your eyes"	
O-H	"It has sort of an overhang."	"And in the front it has a thing to keep the sun out of your eyes."	"Six lines on the peak" "There's a rim that comes out to form shade."

and the presence of responses in the implicit range for the older groups. That is, due to the level of abstractness of some criterial properties some younger subjects did not observe them or try to express them, whereas some older subjects may have attempted to communicate a relatively abstract and differentiated thought about a property and could not express it well. For example, in Table 5.10 the Group O-A response "it's circling" may reflect an attempt to tell more about the shape of the button than to merely state that it was round. Likewise, in the same table, the two responses "shelves in it kind of" and "little groove in the front....a little circle and then it goes out from the rest" may have been attempts to describe the changing contour of the button. It is possible the Group Y-A responses "circle sort of inside" reflected a similar attempt but this subject did not venture beyond.the circle in the middle. It is also possible that a predominant cluster of responses of all groups in the explicit range was a reflection of a relatively simple criterial property.

In summary this analysis yielded the following examples of the qualitative levels in the children's speech behavior in identifying categories of meaning and in specifying parts of the whole. The examples illustrate the qualitative changes in the responses from implicit to implicit-explicit to explicit:

the color of the gold cap -
"yellow" to "yellowish gold" and "yellowy orange" and "goldish yellow" to "gold"

the color of the beige-brown button

"brown" to "sort of brownish" and "brown grayish" and "browny color" to "brown sort of tanny mauve" and "beige-ginger-purple" and "almost has a butterscotch color" and "two-toned...dark brown and beigy depends on which way you turn it..brownish-beige"

shape of the button

"sort of round" to "round" to "circular in form"

shaggy fur of the dog:

"skin is fluffy" to "it's got hair that's quite..fluffy curly" to "shaggy on the muzzle" and "shaggy legs"

size of the horse

"they sort of look like maybe an oversized dog" to "size from four feet to six or seven feet high, a big range"

class name of the cap

"it's" to "cap of some sort" to "baseball cap"

steel shank of the button

"piece of metal there" to "has one hole to thread it with" to "there's a little steel hole in the back" and "has a hook for the thread to go through and hook onto the coat"

The analysis of qualitative changes in children's responses identifying categories of meaning and specifying parts of the stimuli provided evidence of qualitative changes in expression of meaning in each group. However, the degree and nature of the qualitative changes were more pronounced for the older groups than for the younger groups and for the high language users than for the average language users in a given age group. Expressions of tentativeness present in the younger groups' responses were more explicit in the older groups' responses. For example, in the description of the color of the button a Group O-H response "two-toned..dark brown and beigy depends on which way you turn it" was more explicit than a Group Y-A response "brown grayish" and a Group Y-H response "sort of brownish." The older groups appeared to have a greater repertoire of words to draw on. The older groups also evidenced more attempts to deal with abstractions which required greater powers of abstraction and differentiation in making the description. An example of this kind of verbal behavior was given earlier in the reference to the descriptions of the contour of the button.

4. Summary

The analysis of children's responses in the descriptive task "Criterial Properties" yielded the following information:

1. There was considerable variation in number of different identified categories of meaning by the various groups and for the four stimuli. A greater number of categories of meaning were identified for the button than for the cap, the dog, and the horse. The number of component parts in the latter three stimuli appeared to influence this difference. The number of attributes noted increased with maturity and was greater in the groups of greater language facility. There was not a notable difference

in kinds of categories of meaning identified in the various groups. Those which seemed to be most frequently identified were color, size, use, part-whole relations, and class names. There was evidence that the younger children's ability to attend to critical visual sensory data, as in the picture of the dog, was more unstable than that of the older children. There were also indications that the above factor could be a function of language facility. The abstractness of the verbal stimuli appeared to stimulate the identification of a greater number of categories of meaning by the older groups and the younger group with greater language facility.

2. In stimuli consisting of numerous component parts, as many component parts were noted as were other criterial properties. The number and nature of the specified parts tended to vary in all groups with the older groups showing trends toward greater numbers. The specified parts of the dog and the horse were considerably fewer for Group Y-A. In the responses of this latter group, there was also a notable absence of particular parts of stimuli which were present in the responses of the other groups. In an overview of samples of part-whole relationships there were indications of increasing explicitness in the expression of part-whole relations from the younger groups to the older groups.
3. Two patterns were apparent in the analysis of qualitative levels of the identified categories of meaning and specified parts of stimuli. In the first pattern, qualitative levels were apparent

in each of the four groups. The second pattern was a general shift from more implicit responses by the younger groups to a concentration of responses in the middle range for all groups to more explicit responses by the older groups. The qualitative changes were more pronounced in the older groups' responses than in the younger groups' responses.

III. SELECTION OF ESSENTIAL ELEMENTS

Selection of the most essential elements of objects and events for description is critical if accurate communication is to result (Hennings & Grant, 1973, p. 14). Snortum (1967) notes misuse of details which do not serve the purpose of description can have a crippling effect on the communication (p. 141). Two questions were designed for the second descriptive task to discover to what degree children are able to set a purpose for a particular communication situation involving description, to select, and to communicate the essential elements of that particular situation. One question involved describing a notice announcing that a cap had been found and the other question involved composing a newspaper ad announcing a lost dog. The stimuli were those used in the first descriptive task. In the presentation of the questions in this task, the subject's previous taped descriptions of the cap and the dog were replayed for the purpose of letting him hear what he had said about the stimulus in telling all about it.

The description requirements formed the basic categories for analysis of the responses which were: understanding the purpose of the task, organizing for the task, organization sustained throughout the task, and selection of essential detail versus selection of irrelevant detail.

The analysis of the individual responses were tabulated in summary form according to the basic categories and the subcategories which were established in order to provide for a comprehensive summary. The three additional subcategories included "Cap Found" or "Dog Lost" which conveyed the main idea of the notice, specific subcategories denoting the necessary specific details, and where the cap was found or the dog was lost, and whom to contact. The first and third subcategories were derived from an analysis of what is involved in the provision of sufficient information so that the loser of an item might regain possession of it or the finder of a lost item might return it to the owner. The decision regarding the selection of necessary specific details of the cap and the dog was guided by an overview of the individual responses. The "Other Characteristics" category was included to give credit for unique essential detail. For example, reference to the dog's license was considered significant detail. These were the categories and subcategories which formed the structure for the summary of the individual responses for the cap and the dog:

Categories for the Analysis
of Responses Notice:
Cap Found

Focus on Task
Organization for Task
Organization Sustained
"Cap Found"
Kind of Cap
Color
Size
Sun Shade
Elastic Band
Air Holes
Details Inside the Cap
Label
Other Characteristics
Where Cap Was Found
Where Cap May be Claimed
Irrelevant Detail
Description Achieved

Categories for the Analysis
of Responses Newspaper Ad:
Dog Lost

Focus on Task
Organization for Task
Organization Sustained
"Lost a Dog"
(Kind) Dog
Color
Size
Fur
Beard (Muzzle)
Ears
Tail
Eyes
Legs
Face
Other Characteristics
Where Lost
Whom to Contact
Irrelevant Detail
Descriptions Achieved

In Tables 5.19 and 5.20 are presented the summaries of the analysis of the individual responses. The asterisk indicates that the category was noted by the subject.

1. Description Achieved

The criteria for the category "Description Achieved" were based on minimal information required for successful completion of the descriptions of a notice and a newspaper ad. These were the criteria:

1. Focus on the requirement of the language job.
2. Organization for the language job.
3. Organization sustained throughout response.
4. The main idea of the notice "cap found" or "dog lost."

Table 5.19

Categories in Selection of Essential Elements Noted by Subjects
Notice: Cap Found

Group	Subject	Focus on task	Organization for task	Organization sustained	"Cap found"	Kind of Cap	Color	Size	Sun shade	Elastic band	Air holes	Details inside cap	Label	Other characteristics	Where cap was found	Where cap may be claimed	Irrelevant Detail	Description Achieved
Y-A	1				*						*			*			5	No
	2	*	*	*	*	*										*		No
	3	*	*	*	*	*	*						*			*		Almost
	4	*	*	*	*	*	*		*				*					Almost
Y-H	5	*	*		*				*	*	*	*	*	*			8	No
	6						*		*		*	*		*			6	No
	7	*	*		*	*	*				*			*	*	*	5	No
	8	*	*	*	*	*	*								*			Almost
O-A	9	*	*	*	*	*	*	*								*		Almost
	10	*	*	*	*	*	*	*						*	*	*		Yes
	11				*	*	*	*	*		*			*			5+	No
	12	*	*	*	*	*	*	*			*		*		*	*		Yes
O-H	13	*	*	*	*	*	*							*	*	*		Yes
	14	*	*		*	*	*	*		*	*	*	*				4	No
	15	*	*		*	*	*			*	*	*	*	*			4+	No
	16	*	*	*	*	*	*	*										Almost

*Category noted by subject

Table 5.20

Categories in Selection of Essential Elements Noted by Subjects
Newspaper Ad: Dog Lost

Group	Subject	Focus on Task	Organization for Task	Organization Sustained	"Lost a dog"	Dog	Color	Size	Fur	Beard (Muzzle)	Ears	Tail	Eyes	Legs	Face	Other Characteristics	Where Lost	Whom to Contact	Irrelevant Detail	Description Achieved
Y-A	1	*	*				*	*								*				No
	2	*	*	*			*				*					*				No
	3	*	*		*	*	*	*		*	*			*		*			2	No
	4	*	*	*	*	*	*	*										*		Almost
Y-H	5					*	*		*		*	*			*				5	No
	6					*	*				*	*		*					4	No
	7	*	*	*		*	*				*	*		*	*		*	*	3	No
	8	*	*	*	*	*	*			*	*			*				*		Almost
O-A	9	*	*	*	*	*	*		*			*				*		*	1	No
	10	*	*		*	*	*				*	*				*	*	*	4	No
	11				*	*	*	*	*	*		*			*	*	*		9	No
	12	*	*		*	*	*				*	*				*		*		No
O-H	13	*	*	*		*										*		*		No
	14	*	*	*	*	*	*		*	*	*	*				*	*			Almost
	15	*	*	*	*	*	*									*				Almost
	16	*				*	*				*									No

*Category noted by subject

5. Minimal detail about the item - class name and color.
6. Where cap was found or where dog was lost and where cap could be claimed or whom to contact.
7. Absence of irrelevant detail.

If the seven above criteria were met, the subject was given a "yes" rating. A response in which the above criteria were met except for the omission of either one, or both, where cap was found (dog was lost) and whom to contact was given an "almost" rating. Absence of any one or a combination of criteria one, two, three, and five, and inclusion of irrelevant detail rated "no." Both ratings "yes" and "almost" were considered to be successful completion of the requirements of these questions.

Table 5.21 shows the number of subjects in each group achieving success on each criterion and in the description in the question, Notice: Cap Found. The table shows that only fifty percent of the subjects achieved the description. The older groups seemed to have more success in handling the requirements of this question than did the younger groups. In one of the criteria which presented considerable difficulty, that of "Organization Sustained," there was no difference in performance between the younger groups and the older groups, and in both age groups, fewer higher language users than average language users sustained their organization throughout the task. Only two out of four subjects in each of the younger groups provided the required minimal detail for the cap, whereas all the subjects in the two older groups indicated the kind of cap and the color

Table 5.21

Number of Subjects Achieving Success on Each Criterion and for Description Notice: Cap Found

Criteria		Group			
		Y-A	Y-H	O-A	O-H
Focused on requirement of language job.		3	3	3	4
Organized for language job.		3	3	3	4
Sustained organization throughout response.		3	1	3	2
Indicated that a cap had been found.		4	3	4	4
Provided minimal detail about the cap--kind of cap, color of cap.		2	2	4	4
Included where cap was found and where it could be claimed.		0	1	2	1
Included irrelevant detail.		1	3	1	2
Achieved the description.	No	2	3	1	2
	Almost	2	1	1	1
	Yes			2	1

of the cap. The two most troublesome criteria for all groups were "Where Cap Was Found" and "Where to Claim the Cap" and the inclusion of irrelevant detail.

In Table 5.22 is presented the number of subjects in each group achieving success on each criterion and in the description in the question, Newspaper Ad: Dog Lost. The table shows that fewer subjects (twenty-five percent) met all the criteria for successful completion of this question than that of the notice for the cap in which fifty percent of the subjects rated "yes" or "almost." The criteria which were not met by a large percentage of the subjects in this task were the same ones not met in the notice for the cap. In addition, fewer subjects conveyed the main idea of the notice "dog lost" than the main idea of the notice "cap found." In comparison to Table 5.21, Table 5.22 shows a greater variation in responses and an absence of any pattern regarding the four groups. This would suggest that this task was equally difficult for both age groups and for the average language users and the high language users. It would also suggest that composing a newspaper ad was a more difficult language job than composing a notice announcing a lost item. It would appear that Group O-H had a little more control over the task than the other groups.

The performance of the subjects in both questions may be related in part to the unsystematic, nonanalytic approach to a task of the elementary school child due to the semi-abstract and relatively nonverbal character of his cognitive functioning (Ausubel, 1963,

Table 5.22

Number of Subjects Achieving Success on Each Criterion and for Description Newspaper Ad: Dog Lost

		Group			
Criteria		Y-A	Y-H	O-A	O-H
Focused on requirement of language job		4	2	3	4
Organized for language job		4	2	3	3
Sustained organization throughout response		2	2	1	3
Indicated that a dog had been lost		2	1	4	2
Provided minimal detail about the dog-- dog and color		2	4	4	3
Included where dog was lost and whom to contact		0	1	1	0
Included irrelevant detail		1	3	3	0
Achieved the description	No	3	3	4	2
	Almost	1	1	0	2
	Yes	0	0	0	0

p. 122). This unsystematic approach to tasks may have been exaggerated by the lack of opportunity in an oral language situation to check, condense, and reorganize his ideas as he would be able to do in writing. The reason for the difference in performance between the cap and the dog may be that the children may have had more experience regarding a lost item of clothing and little or no experience with newspaper ads.

2. Essential Elements

A further analysis was done of the responses for the found cap and the lost dog with regard to selection and omission of essential elements in composing a notice for the found cap and a newspaper ad for the lost dog. Essential elements refers to the details about the lost items which were considered permissible as significant details in the initial analysis of the responses. Table 5.23 shows summaries for both the cap and the dog, for all subjects, indicating number of essential elements noted, omission of class name and/or color, and inclusion of irrelevant detail. Two patterns emerge in the examination of the mean scores for number of selected essential elements for the cap and dog:

	Y-A	Y-H	O-A	O-H
Cap	2.5	4.3	4.5	5.0
Dog	4.0	5.5	5.8	5.0

Table 5.23

Number Essential Details Noted and Omitted, and Irrelevant Detail Noted by Subject and by Stimulus

		CAP				DOG		
Group		Number Essential Details	Essential Details Omitted	Irrelevant Details		Number Essential Details	Essential Details Omitted	Irrelevant Details
Y-A	1	2	color	*		3	class name	
	2	1	color			3	class name	
	3	3				7		*
	4	4				3		
Y-H	5	6	color	*		6		*
	6	5	class name	*		5		*
	7	4		*		6		*
	8	2				5		
O-A	9	3				5		*
	10	4				5		*
	11	6		*		8		*
	12	5				5		
O-H	13	3				2		
	14	7		*		7		
	15	7		*		8		
	16	3				3		

*Irrelevant detail noted.

The number of selected details was greater for the dog than for the cap in all groups except Group O-H. There was a consistent increase in number of selected details from Group Y-A through Group O-H with the exception that the mean score for the dog was lower for Group O-H than the mean scores for the dog in Groups Y-H and O-A. These two patterns raise the question of ability to discriminate the specific from the general. Although a wide range of essential elements was considered permissible for the cap and for the dog in the initial analysis of the response, if ability to discriminate the specific from the general is a function of development in abstractness and the eleven year old and twelve year old child's level of abstractness is greater than that of the younger child's at age eight or nine, should the older groups' mean scores not have shown greater discriminating ability in a gradual decrease of mean scores from the younger groups? That the eleven and twelve year old has not reached the stage of formal operations may account for the apparent instability in discriminating the specific from the general (Piaget, 1970; Ausubel, 1963).

The question as to whether the subjects might have shown greater proficiency in these language jobs if the criteria for successful completion of the description had been limited to number of selected essential elements was also examined. The criteria in this analysis were inclusion of class name and color, and the absence of irrelevant detail. The number of subjects who met these criteria for both the cap and the dog is as follows:

	Y-A	Y-H	O-A	O-H
Notice: Cap Found	2	1	3	2
Newspaper Ad: Dog Lost	1	1	1	4

The total number in each group who successfully completed the question for the cap in this analysis are the same as those in Table 5.21. However, the total number of subjects who met the criteria for successful completion of the description of the dog was greater for the older groups in this analysis than in the first analysis as shown in Table 5.22.

In these analyses, the subjects' specific difficulties pointed to discriminating the specific from the general, going beyond the sensory data to infer what was required in the provision of sufficient information for the loser of an item to regain possession of it and for the finder of a lost item to return it to the owner, and to hold the selected properties in mind in order to sustain effective organization for the completion of the task. It would appear that the subjects' difficulties were related to the developmental aspect of abstractness in functioning which these jobs required.

It should be noted that subject number five's comment, "This will be little. They won't let you put much in the paper," would suggest that he had some idea of the requirements of the job. Yet he failed to focus on it, to organize for the task, and included five irrelevant details in his response.

3. Qualitative Levels in Speech Behavior

A complete analysis of the qualitative levels regarding the identified categories of meaning in this descriptive task was not possible. However, the following examples were included to show the variation in the descriptions of the cap and the dog in a language job in which the requirement was to describe them and in which description was done in a specific functional situation. The selection of the samples for comparison was determined as follows: the cap - boy number one in Group Y-A; (subject #1); the dog - girl number one in Group O-H (subject #15).

Subject #1:

Description of the Cap

> This is a cap. It's used for hunting or maybe baseball. It's got elastic rim around the back so it'll probably fit everyone. And the front is made out of cardboard. It's got brown rimming and green stitching. It's got a green piece of cloth below the cardboard. And it's yellow. It's got a little button at the top. It's got steel little holes. It's got yellow stitching.

Notice: Cap Found

> This cap....it has a button at the top. It has little holes mainly for air to circulate. Or maybe...it's got cardboard with green stitching, brown lining in the m... in the bottom with white inside there in the cap. And the yellow with blue lining. And..and then I'd look for a name. If there was a name on it, I'd put the name on it.

Subject #15:

Description of the Dog

> This is a dog, a scottish terrier. A rusty color and black at the back. Has four legs, one tail, two ears, two eyes, one nose, a mane and one mouth. He's standing on the road. Has paws. Doesn't look like he has a chain on him. The fur is quite close to his body except for his legs - it's sort of fluffy there. The tail is straight up in the air. He looks like he's happy. The fur looks rather rough overtop his eyes. Doesn't look like he's been washed for quite a long time. He's sort of like a beard...long straggly fur from his mouth... black nose. Can't really see any whiskers. And I like him cause he's a nice pet to have around the house and that's it.

Newspaper Ad: Dog Lost

> Lost one...rusty colored...scottish terrier. He's rusty colored at the front and a dark color at the back. He has brown eyes...and is cute looking. That's all.

Summary

There were indications in the analysis of the subjects' responses in the descriptive task "Selection of Essential Elements" that ability to select significant elements of stimuli and to relate them to a functional situation is developing at the elementary school level and is unstable even at the eleven and twelve year old level. Although the older groups appeared to have a little more control in meeting the requirements of the job, particularly in discriminating the specific from the general, their performance fluctuated considerably in the two questions. The greatest areas of difficulty for all of the groups were: sustaining organization throughout the task; the provision of basic essential information, class name and color; inferential thinking (where lost and whom to contact); and inclusion of irrelevant detail.

IV. COMPARISON AND CONTRAST

The objective of the descriptive task "Comparison and Contrast" was to obtain samples of children's descriptive language in making comparisons of objects, pictures of objects, and concepts. There were eight questions of increasing complexity. Two questions were designed to tap growth in subjective-objective behavior - point of view of others and feelings of self and of others.

The requirements of the first two questions were to compare two objects. The shoe, the boot, and the slipper in question four involved a multiple comparison. In the comparison of the school and the theatre, in question five, the subject had to speak of objects and experiences remote in space and time. To compare a birthday and an anniversary (question six) not only required dealing with experiences remote in space and time, but conceptual thinking. Questions seven and eight involved making comparisons from the point of view and feelings of others.

According to Fournier (1969) comparison and contrast are used to examine, and to describe and to differentiate objects, activity, time, space, size, position, emotion, feeling, number, and sequence (p. 39). Comparison involves the abstraction of common features, the criterial properties, relating two or more stimuli, and showing how the features are interconnected.

Three major categories based on the description requirements of the research instrument constituted the analysis of the responses in the descriptive task "Comparison and Contrast." The categories were: organization for the task; quantity and quality of the abstracted features; and expression of the relationships among the abstracted features.

1. Organization for the Task

Organization took into account the subject's approach to a task in which he was required to abstract common features relating two stimuli, or three stimuli, and to show the interconnections among the abstracted features. The concern of this category was to discover whether the differences were specified first and then the similarities or whether the similarities were attended to first and then the differences; or whether the specification of differences and similarities was interspersed in making the comparison. Church (1961) states that tests which require the subject to specify the way two things differ from each other, or resemble each other, are developmentally distinct tasks, and the ability to specify differences develops before the ability to specify similarities (p. 176).

In line with Church's point of view, Vygotsky (1962 translation [1934]) concluded from his experiments that thinking at the second level of the complex stage, the collection complex, associations are made by contrast rather than by similarity. According to Vygotsky this is a long persistent stage in the development of a child's thinking because it is rooted in his practical experiences such as grouping a set of dishes or the set of clothes he wears. In the stages which follow the stage of collection complex thinking, the chain complex and the diffuse complex, thinking is based on some kind of common bonds. However, the similarity factor continues to be changeable because it is based on "dim, unreal, unstable attributes (p. 66)."

An analysis was done of the sequences employed by the individual in the organization of his response to each question. The subject's response was rated a "D/S" sequence when the first part of the response consisted mainly of specified differences between the abstracted features and concluded with specified similarities. An "S/D" rating was given for a sequence in which similarities between the abstracted features were specified first and then the differences. A random approach to the question, in which the specified differences and the specified similarities between the abstracted common features were interspersed throughout the response was given a "I" rating.

In Table 5.24 is presented the sequences employed by the individual in the organization of his responses to each of the eight questions. The asterisks indicate the sequences which were employed by the individual. The asterisks with the bar under them ($\underline{*}$) indicate that the total response consisted solely of differences or solely of similarities. In an overview of Table 5.24, the impression is one of considerable variation in mode of organization by the individual in the various questions.

In an analysis of the organizational sequences shown in Table 5.24, a number of patterns appeared in the groups according to

Table 5.24

Sequences Used in Organization of Responses in Comparing Stimuli by Subject and by Question

Group	Subject	Questions																							
		I			II			III			IV			V			VI			VII			VIII		
		D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I	D/S	S/D	I
Y-A	1	*̲					*	*			*			*̲			*̲			*			*̲		
	2		*		*			*			*				*			*		*̲			*̲		
	3	*			*̲			*					*			*		*		*̲			*̲		
	4			*			*			*	*̲				*		*			*̲			*̲		
Y-H	5			*	*						*					*	*			*			*		
	6		*			*		*̲			*̲̅			*̲			*̅			*̲̅			*̲̅		
	7	*					*			*	*̲			*				*		*̲			*̲		
	8	*̲			*				*				*		*			*			*		*̲		
O-A	9		*		*̲			*					*	*				*̲		*̲			*̲		
	10		*		*			*̲			*̲			*̲			*			*̲			*̲		
	11		*			*				*	*			*			*̲			*̲			*̲		
	12		*			*				*	*			*̲			*̲			*̲			*̲		
O-H	13		*		*̲				*		*			*			*			*			*		
	14		*			*			*			*		*̲				*		*̲̅			*̲̅		
	15			*			*			*	*̲			*			*			*̲			*̲		
	16			*			*			*	*̲					*			*	*̲			*̲		

D/S: different-similar sequence
S/D: similar-different sequence
I: differences and similarities interspersed
*̲: only similarities or differences noted

the complexity of the questions. There was a marked difference in the sequences employed between questions one to three and questions four to eight. These were the patterns of organization in the first three questions:

	D/S Sequence	S/D Sequence or Interspersion
Group Y-A:	7 out of 12 responses	5 out of 12 responses
Group Y-H:	6 out of 12 responses	6 out of 12 responses
Group O-A:	4 out of 12 responses	8 out of 12 responses
Group O-H:	1 out of 12 responses	11 out of 12 responses

These findings indicated that in relatively simple tasks, some individuals in each group were developing the ability to specify similarities. A transition from reliance on the specification of differences to greater use of similarities was apparent in the gradual increase in number of responses employing S/D sequences and interspersion of differences and similarities from Group Y-A to Group O-H in these relatively simple tasks. The high language users tended to employ fewer D/S sequences than the average language users within an age group.

Table 5.24 shows a marked change in mode of organization between the first three questions and the last five questions. The table shows that in questions four to six, the greater percentage of responses in all groups employed D/S sequences and in questions seven and eight, the organizational patterns were predominantly D/S sequences. In these last five questions, a high percentage of the responses consisted solely of specified differences. In questions seven and eight, all of the responses, with the exception of one, consisted of differences only. Ausubel (1963) states that when relational propositions are complex, the elementary school child may have to fall back on subverbal concrete or intuitive functioning (p. 117).

It was also noted that in question five, there were more D/S sequences employed by the older groups than by the younger groups. It may be that the verbal stimuli may have stimulated greater abstraction of thought in the older children in this question, in which the abstracted features could have been on a concrete level or an abstract level, therefore causing the older children to employ earlier concrete forms of behavior in speaking about them.

2. Quantity and Quality of the Abstracted Features

Comparison and contrast involves the abstraction of common features, the criteral properties, of the stimuli. This category was concerned with the total number of common features which the subjects abstracted in relating two or three stimuli and with the categories of meaning the features represented.

Quantity of abstracted features. The total number of abstracted features by the individual were tabulated for each question. Table 5.25 shows the number of abstracted features by the individual in each question.

In Table 5.26 is presented the mean number of abstracted features in each of the eight questions. The only notable pattern

Table 5.25

Total Number of Abstracted Features
by Subject and by Question

Group	Subject	Question							
		I	II	III	IV	V	VI	VII	VIII
Y-A	1	7	8	10	9	5	1	3	4
	2	5	5	5	4	7	2	2	2
	3	6	4	6	4	5	3	1	4
	4	7	6	13	6	7	4	5	3
Y-H	5	19	15	28	9	9	4	3	5
	6	6	2	9	6	4	2	2	2
	7	5	8	8	3	6	6	3	3
	8	3	3	4	4	5	2	2	1
O-A	9	5	3	12	9	5	8	7	4
	10	10	5	9	2	6	3	4	3
	11	8	7	14	9	5	8	3	4
	12	7	9	14	11	10	5	8	3
O-H	13	8	7	6	8	15	7	1	4
	14	7	7	7	9	11	7	6	3
	15	12	12	18	4	10	4	6	5
	16	4	7	6	7	9	4	5	5

Table 5.26

Mean Number of Features Abstracted

Group	Question							
	I	II	III	IV	V	VI	VII	VIII
Y-A	6.3	5.8	8.5	5.8	6.0	2.5	2.8	3.3
Y-H	8.3	7.0	12.3	5.5	6.0	3.5	2.5	2.8
O-A	7.5	6.0	12.3	7.8	6.5	6.0	5.5	3.5
O-H	7.8	8.3	9.3	7.0	11.3	5.5	4.5	4.3

the mean scores yielded was in the differences in total number of abstracted features among the eight questions. In most of the questions the mean scores do not show significant patterns of progressive increase from the younger groups to the older groups or from the average language users to the high language users within a given age group. The greatest number of abstracted features occurred in question three in all of the groups. The numerous parts of the truck and the V.W. van may have accounted to a large extent for these results. The mean number of abstracted features are relatively similar in questions one, two, four, and five. It should be noted that the requirements for the multiple comparisons in question four and the requirements for dealing with objects remote in space and time in question five seemed not to inhibit the identification of properties in comparison to the more simple requirements of questions one and two. The total number of abstracted features was considerably lower in the last three questions involving comparison of the abstract concepts of a birthday and an anniversary and involving comparison of objects from the point of view of others. In these questions, the older groups' mean scores were considerably higher than the younger groups' mean scores. These findings pointed to the possibility that number of abstracted features in a comparison task may not be a function of age unless the stimuli involve a relatively high level of abstractness in functioning. According to Vygotsky (1962 translation [1934]), ability to speak about abstract concepts is tentative before age thirteen (p. 58). As for questions seven and eight, ability to operate from the point of view of others is suggested to be only fully realized at approximately age twelve (Piaget & Inhelder, 1969, p. 128).

Quality of abstracted features. The features which were abstracted by the subjects in each question were analyzed in the light of the categories of meaning they represented. For example, all features referring to color were collected under color. All the specified parts of the stimuli were collected and listed under part-whole relations. The features which were not represented by common categories of meaning were listed under "other attributes." Lists were compiled and tabulated of all the categories of meaning, other attributes, and part-whole relations identified by the individuals.

The focus in this analysis was on the qualitative nature of the categories of meaning and the other criterial properties. Thus the analysis addressed the developmental levels within the concrete-abstract dimension of the identified categories of meaning and the other criterial properties. For the present study three classes or levels were established to differentiate growth along the concrete-abstract continuum. The classes which were established and the criteria for each class were as follows:

a. Perceptible (concrete)

The categories of meaning and the other criterial properties which appeared to be bound to the "immediate, surfacy aspects (Olver & Hornsby, 1966, p. 73)" of the stimuli such as colors, sizes, shapes, and places were classified as perceptible..

b. Functional

The categories of meaning and the other criterial properties which indicated what a stimulus can do or what one can do with it (Maccoby and Modiano, 1966, p. 258) were classified as functional.

c. Conceptual

The categories of meaning and the other criterial properties reflecting movement "beyond the stimulus to the nature of the setting of the stimulus in a broader domain (Olson, 1966, p. 13)," which represents growth toward ability to speak about abstract concepts and to operate with concepts were considered to be of a conceptual level.

In studies done by Olver & Hornsby (1966) which investigated children's comprehension of similarities and differences, the younger children were found to use perceptible attributes (p. 72). Olver and Hornsby posit that the criteria of younger children in the selection of attributes are restricted to colors, sizes, shapes, and places of things. Their thinking is complexive. That is, they may say a banana and a peach are a group because they're both yellow. From age six there is a steady increase in use of functional attributes. Age nine is considered to be the period of functionalism which marks a transition period in which the child is freed from responding to the more "immediate, surfacy aspects of things around him (p. 73)." Accompanying the trend toward growing functionalism is the superordinate construction when bananas and a peach may be called a group because "They're all food" (p. 74). Use of perceptible attributes were found to decline from forty-seven percent at age six to twenty-seven percent at age eight to twenty percent at age eleven. The increase in superordinate groupings was from thirty-four percent at age six to sixty-nine percent at age eight to eighty-five percent at age eleven.

Maccoby & Modiano's (1966) conclusion to their studies which were undertaken to examine how general the Olver & Hornsby (1966) findings might be were:

> A city child coming from an industrial society starts by dealing with objects in terms of their perceptible, concrete characteristics. He soon comes to consider them in the light of what he can do with them. In time, he is led to more abstract formulations as to how things are, how they are alike and how different. Some go so far that they lose the sense of the concreteness of things and become buried in a dry nomalism. They are like people who see a painting immediately in terms of style, period, influences, but with no sense of its uniqueness (p. 268).

Reichard, Schneider & Rapaport (1944) conceive of three levels of conceptual development in the thinking of children: the concretistic thinking of the young children; functional classification, which reaches its peak in children eight to nine years; and conceptual, the mature level of abstract thinking.

In Tables 5.27 to 5.34 are presented the lists of the categories of meaning and the other criterial properties which were identified by the individuals in abstracting the common features of the stimuli in each of the eight questions. The asterisks show the groups in which subjects identified the particular categories of meaning and the other criterial properties. The letters on the right side of the tables refer to the developmental classes or levels which were established for the present study to differentiate growth along the concrete-abstract continuum. The letter "C" represents the conceptual level of classification and the letter "F" represents the functional level of classification. Those categories of meaning or the other criterial properties which have a "C" beside them were considered to be in the conceptual class, an "F" in the functional class, and without a letter in the perceptible class. The classification of the categories of meaning and the other criterial properties as to perceptible, functional, or conceptual level were based on the criteria established for this study which were described in the preceding discussion.

The lists in Tables 5.27 to 5.34 vary in length. The tables show that a relatively small percentage of the identified categories of meaning and criterial properties were noted by the four groups. This observation is supported by the summary of categories of meaning and criterial properties noted by the four groups which is shown in Table 5.35. Another notable trend in the summary is that the range of categories of meaning identified by the four groups was limited to mainly color, function, use, and part-whole relations which is similar to the range of categories of meaning identified by the four groups in the descriptive task "Criterial Properties" as shown in Table 5.6. Two of the most frequently identified categories of meaning, apart from part-whole relations, were use and function. Both these findings and the restricted number of identified categories of meaning would be supported by the Olver & Hornsby (1966) position regarding development

Table 5.27

Groups Identifying Categories of Meaning and Other Criterial Properties: Jelly Beans and Bell

Category of Meaning	Group				
	Y-A	Y-H	O-A	O-H	
color	*	*	*	*	
shape		*	*	*	
size	*	*	*		
texture	*	*	*		
composition	*	*			
weight	*				C[a]
smell			*		
sound	*	*	*	*	
use				*	F[b]
function	*	*	*	*	F
Other Attributes					
solid	*	*			C
transparent "see through"	*		*	*	
shiny		*	*	*	
breakable			*	*	C
cost				*	C
where obtained				*	C
connotative			*		
Part-Whole					
top of object	*	*	*	*	
rings on bell	*		*	*	
contents	*	*	*	*	
bottom--of containers	*	*			
number on lid		*			
marks on bell		*	*		
price tag		*			

a. Conceptual response
b. Functional response

Table 5.28

Groups Identifying Categories of Meaning and Other Criterial Properties: Jelly Beans and Powder

Categories of Meaning	Group				
	Y-A	Y-H	O-A	O-H	
color	*	*	*	*	
shape		*	*	*	
size	*	*	*	*	
texture		*		*	
composition	*	*	*	*	
weight				*	C[a]
sound		*	*	*	
use	*	*	*	*	F[b]
function	*	*	*	*	F
Other Attributes					
transparent "can see through"	*	*	*	*	
solid		*	*	*	C
molded		*			C
where contained		*	*		
breakable			*		C
Part Whole					
top of jar	*	*	*	*	
Contents	*	*	*	*	
price tag		*			
Printing on bottom of jar		*			

a. Conceptual response
b. Functional response

Table 5.29

Groups Identifying Categories of Meaning and Other Criterial Properties: Bus and V. W. Van

Categories of Meaning	Groups Y-A	Y-H	O-A	O-H	
color	*	*	*	*	
shape		*	*		
size	*	*	*		
weight			*		C[a]
use	*	*	*	*	F[b]
class name	*	*	*	*	C
Other Attributes					
automatic/standard				*	C
use of gas				*	C
How the vehicles handle in driving	*				C
safety factors	*			*	C
no. of units vehicles consist of	*	*		*	
where made		*			
Part-Whole					
lights	*	*	*	*	
doors	*	*	*	*	
windows	*	*	*	*	
wheels	*	*		*	
engine	*		*	*	
hood				*	
top			*	*	
bumpers	*	*	*	*	
fenders			*		
back opening		*	*	*	
windshield			*		
seats	*	*	*	*	
steering wheel	*	*	*	*	

Categories of Meaning	Groups Y-A	Y-H	O-A	O-H	
license		*			
signs		*	*		
screws		*			
chrome		*			
passengers	*	*	*	*	F
drivers		*			C

a. Conceptual response
b. Functional response

Table 5.30

Groups Identifying Categories of Meaning and Other Criterial Properties: Boot, Shoe, and Slipper

Categories of Meaning	Groups Y-A	 Y-H	 O-A	 O-H	
color	*	*	*	*	
size		*		*	
composition		*	*	*	
weight				*	C[a]
texture			*		
use	*	*	*	*	F[b]
function	*	*	*	*	F
class name	*	*	*	*	C
Other Attributes					
cost				*	C
construction				*	C
feeling				*	C
Part-Whole					
laces	*	*	*	*	
heel	*		*	*	
lining	*	*	*	*	
tab (pull on)	*	*	*	*	
lining	*	*	*	*	
stripes on boot	*	*	*		
tongue			*	*	
holes for laces			*		

a. Conceptual response
b. Functional response

Table 5.31

Groups Identifying Categories of Meaning and Other Criterial Properties: School and Theatre

Categories of Meaning	Y-A	Y-H	O-A	O-H	
Color				*	
size	*	*	*	*	
actions "sit"		*	*		
use	*		*	*	F
function	*	*	*	*	F
class name	*				C
location				*	C
Activities					
baseball	*				F
plays	*		*	*	F
school subjects	*			*	F
movies	*	*	*	*	F
work with pencils, paper, books	*	*	*	*	F
art		*			F
Other Attributes					
recess/intermission	*	*			F
quiet/noisy	*				
cost (tickets/fees)	*			*	C
refreshments	*		*	*	
appearance		*		*	
attendance: length of time		*		*	C
attendance: time of week		*			C
enjoyable			*	*	C
comfortable				*	C
restriction/ freedom			*	*	C
privileges				*	C

Categories of Meaning	Y-A	Y-H	O-A	O-H	
changes/ sameness			*	*	C
dependable			*		C
indoors/outdoors			*		C
school compulsory				*	C
dress				*	
behavior				*	C
Part-Whole					
people	*	*	*	*	F
fire escapes	*				
windows	*				
rooms	*		*	*	
seats	*	*	*	*	
stage		*			
screens	*	*	*	*	
stairs		*			
balcony			*		
carpeting			*	*	
school equipment	*		*	*	

a. Conceptual Response
b. Functional Response

Table 5.32

Groups Identifying Criterial Properties: Birthday and Anniversary

Criterial Properties	Group Y-A	 Y-H	 O-A	 O-H	
Concrete example	*				
Definitions:					
birthday-birth	*	*	*	*	C[a]
anniversary-					
1) marriage	*	*	*	*	C
2) other occasions				*	C
Concept: celebration	*	*	*	*	C
number people celebrating: 2 versus 1		*	*	*	
how celebrated	*	*	*	*	
presents	*	*	*	*	
food and drink	*	*	*		
frequency	*	*		*	C
people invited to celebration	*	*	*	*	
special birthdays and anniversaries		*		*	C

A. Conceptual response

Table 5.33

Groups Identifying Categories of Meaning and Other Criterial Properties: Ant Comparing Boot and Slipper

Categories of Meaning	Groups Y-A	 Y-H	 O-A	 O-H	
color		*	*	*	
size	*	*	*	*	
shape			*		
texture		*	*	*	
height			*	*	
uses	*				C[a]
class name	*				C
Other Attributes					
height from ground	*	*	*	*	
spell danger	*	*	*	*	C
shelter (holes/threads)	*	*	*		C
accessibility	*	*	*	*	C
appearance			*	*	
comfort			*	*	C
hollow			*		

a. Conceptual response

Table 5.34

Groups Identifying Criterial Properties: Father Comparing Boot and Slipper

Criterial Properties	Groups Y-A	 Y-H	 O-A	 O-H	
slippers feel more comfortable	*	*	*	*	C[a]
slippers are more comfortable	*		*	*	C
slippers feel better	*				C
slippers more relaxing	*	*	*	*	C
warmth	*	*			C
fit	*				C
boots hot and sweaty		*	*	*	C
heavy, hard/light, soft		*	*	*	
height of boot				*	F[b]
function	*	*	*	*	C
distractable			*	*	
composition		*			
boots dirty house		*	*		
boots worn in house make mother angry	*				

a. Conceptual response
b. Functional response

from perceptible to functional to conceptual thinking. These findings also suggested that functionalism is still prevalent at ages eleven and twelve years.

The total number of different categories of meaning and other criterial properties identified by the individual in each question and the distribution of the number of perceptible, functional, and conceptual categories were tabulated in Table 5.36 primarily to discover the number of conceptual categories compared to the other levels of categories in each question. The percentage of the conceptual categories in each question was computed and is also shown in Table 5.36. The pattern appearing is a gradual increase in percentage of conceptual categories as the questions increase in complexity from one to eight with the exception of question seven which is lower than the percentage in question six. A considerable increase in percentages is noted in questions five to eight. These findings served not only to reinforce an earlier hypothesis that verbal stimuli tend to provoke greater abstractness of thought but to postulate that comparisons based on abstract concepts and involving point of view of others provoke an increase in conceptual behavior.

Table 5.37 showing the frequency pattern of conceptual categories of meaning and the other criterial properties for each question indicates that conceptual categories were communicated by subjects in all of the four groups. However, the number of conceptual categories was consistently higher for Group O-H than for the other three groups in all questions except in questions seven and eight which involved point of view of others. These results

Table 5.35

Summary of Categories of Meaning Noted By Four Groups

Question I	Question II	Question III	Question IV
color sound function (F) Part-Whole: (top of object) (rings on bell) (contents)	color shape size composition use (F) function (F) transparent Part-Whole: (top of jar contents)	color use (F) class name (C) Part-Whole: (lights) (doors) (windows) (bumpers) (seats) (steering wheel) (passengers) (F)	color use (F) function (F) class name (C) Part-Whole: (laces) (lining) (tab-pull on) lining
Question V	Question VI	Question VII	Question VIII
size function (F) movies (F) work (F) people (F) Part-Whole: (seats) (screens)	definition: birth (C) definition: marriage (C) celebration (C) how celebrated presents people invited	size height from ground danger (C) accessibility (C)	slippers feel comfortable (C) slippers more relaxing (C) function (F)

Table 5.36

Number of Different Categories of Meaning and Criterial Properties: And Perceptible, Functional and Conceptual Categories by Question

Questions	Total Number Categories of Meaning and Other Criterial Properties	Perceptible	Functional	Conceptual
1	24	17	2	5 (21%)
2	19	13	2	4 (21%)
3	33	24	2	7 (21%)
4	21	14	2	5 (24%)
5	42	18	10	14 (33%)
6	12	6	0	6 (50%)
7	14	8	0	6 (43%)
8	14	4	1	9 (64%)

Table 5.37

Number of Conceptual Categories of Meaning and Criterial Properties by Group and by Question

Questions	Group			
	Y-A	Y-H	O-A	O-H
1	2	1	1	2
2	0	2	2	2
3	2	2	2	4
4	1	1	1	5
5	2	2	5	10
6	4	5	3	6
7	4	3	4	3
8	7	4	5	5

possibly reflect a different approach, by the eleven and twelve year olds from eight and nine year olds, to questions involving the developmental factor of objectivity in thinking. Approximately age twelve is the period when the transition from subjective behavior to objective behavior in thought and speech is fully realized (Piaget & Inhelder, 1969). Objectivity represents progression toward greater differentiation manifested in particular in the growing ability to adapt to the point of view of others and in the disappearance of autistic, magical, absolutistic, and nominalistic thinking (Ausubel, 1963, p. 115).

3. The Expression of the Relationships Among the Abstracted Features

The objective of this category was to discover the ways in which the subjects expressed the relationships among the abstracted features. The expression of relationships involved both the concrete-abstract dimension and the implicit-explicit dimension, perception of the relationships of the abstracted features in objects and events, and the expression of the interconnection of the abstracted features in words and sentences. Three classes were established for the analysis of the individual responses regarding abstraction of the features, seeing the relationships among the abstracted features, and speaking of the relationships among the abstracted features: listed abstracted features, reduced comparisons, and statements of comparison.

Listed abstracted features. If a particular property was noted in one of the stimuli and there was no indication that it was noted in the other stimulus, or stimuli, the statement was considered to be listing a discriminating feature. For example, in question 3, one response was, "The truck's for delivering things." An equivalent feature was not noted for the van. This statement was assigned to the first class of responses, listed abstracted features. This response then reflected a tendency to note only isolated features and not the common features among the stimuli.

The individual responses which communicated the presence of an attribute in one of the objects and not in the other were recorded as listed abstracted features and the total number of listed abstracted features was tabulated in each question.

In Table 5.38 is shown the mean number of listed abstracted features for the four groups in each question. The most notable pattern which can be traced in this table is that the mean scores for Group O-H are consistently lower than those of the other groups in all questions except question seven in which the mean score for Group O-H is the highest of all the groups. These findings suggested that the older high language users showed greater proficiency in abstracting common features than did any of the other groups. As indicated earlier, the nature of a point of view question may have accounted for a different approach to question seven by the older high language users.

Table 5.38

Mean Number of Listed Abstracted Features

	Group			
Questions	Y-A	Y-H	O-H	O-H
1	1.5	0.5	1.5	0.3
2	1.3	1.3	0.3	0
3	3.5	2.3	1.0	0
4	2.8	1.5	5.0	1.0
5	3.3	4.3	2.8	0.3
6	0.5	1.0	1.3	0.3
7	0.8	0.5	2.0	2.3
8	2.0	1.3	2.0	1.0

Since the mean scores in Table 5.38 tend to vary in the first three groups in the various questions, they do not show trends toward a decrease in listing isolated features from the younger groups to the older groups or from younger average languag~~e users to~~ the older language users.

It is noted that the mean scores are relatively low for the four groups in most questions, an indication that on the average there were few listed isolated features. Due to the variation of mean scores, no significant pattern can be discovered as to whether particular questions provoked more listing of isolated features than others. However, according to Table 5.39 which shows total number of listed abstracted features for each subject in the various questions in comparison to total number of reduced comparisons and statements of comparison, it appears that number of subjects listing abstracted features was lowest in questions one and two and highest in questions four and eight.

<ins>Reduced comparisons</ins>. When the statement of comparison implied that common features had been identified within the stimuli and indicated the relationship through the use of a relational term, but pointed to only one stimulus, or two in the case of the multiple comparison, and did not specify the other stimulus, this response was classified as a <ins>reduced comparison</ins>. An example of a statement assigned to this class was drawn from question five (school and theatre): "And sometimes a theatre has more seats." This statement raised the question, More seats than what? Reduced comparisons

Table 5.39

Number of Listed Abstracted Features, Reduced Comparisons and Statements of Comparison by Subject and by Question

Group	Subject	Questions																							
		I			II			III			IV			V			VI			VII			VIII		
		Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison	Listed	Reduced Comparison	Statements of Comparison
Y-A	1			7	4		5	8	1	3	5		3	2		3	2					3	2		1
	2	1		4			5	1		4			4	1	1	5			2			2		1	2
	3	5		2	1		3	2		4	3			3		5			3			1	4		
	4			7			6	3		10	3		3		1	7			4	3		2	2		1
Y-H	5			14	3	2	9	4	2	24	3	2	7	2	1	6	1		3	1		1	3	2	1
	6	2		3			2	4			3				1	3	1		1	1		1	2		
	7			5	2		5	1		7			2			6	2		3			3			3
	8			3			3			4			4			4			2			2			1
O-A	9			5			3			12			9			3			8			7	1	1	1
	10	6		5			5		1	6	1	2		1		4			3	3		1	3		
	11			7	1		6			15	16		2	3	2	2	4		1	3	1		4		
	12			7			8	4	1	9	3		8	2	1	5	1		4	2	1	5			1
O-H	13			8		2	4			6	2		5	1		10	1		6	2			3	2	
	14	1		6		1	6			7	1	1	7		3	6			6		2	2		1	2
	15		3	11			10			18	1	1	3		2	8			2	6	2	1	1	1	
	16			4			7			6			8			8			4	1	2	2		2	1

indicated that common features had been noted. Therefore, they pointed to implicitness in speech behavior rather than limitations in perception and selection. On the other hand the use of relational terms suggested growth in the direction of explicitness in the area of language structure.

The individual statements of comparison which matched the criteria established for reduced comparisons were tabulated in each question. Table 5.40 shows the mean number of reduced comparisons in each question for the four groups. According to the table there were no reduced comparisons for a number of groups in several questions, particularly in questions one and six, and relatively few in others. This observation is substantiated by Table 5.39 which shows total number of reduced comparisons for each individual in the various questions in comparison to listed·abstracted features and statements of comparison. In five questions out of the eight, Group O-H has the greatest number of higher mean number of reduced comparisons than any of the other groups. Since reduced comparisons involved the use of relational terms, these findings pointed to greater proficiency of the older high language users in meeting the requirements of the comparison task. The table does not yield any other significant pattern.

Statements of comparison. This class included the statements which stated that common features had been discriminated and specified in two, or three, stimuli and which pointed to the specific stimuli from which the common features had been abstracted. Reference

Table 5.40

Mean Number of Reduced Comparisons

	Group			
Question	Y-A	Y-H	O-A	O-H
1	0	0	0	0.8
2	0	0.5	0	0.8
3	0.3	0.5	0.5	0
4	0	0.5	0.5	0.5
5	0.5	0.3	0.8	1.3
6	0	0	0	0
7	0	0	0.5	2.0
8	0.3	0.5	0.3	1.5

to the stimuli was either by label or the use of pronouns such as "it," "one," or "they" depending on the context of the overall response. Some examples of references to the stimuli are as follows:

> "The jar is bigger than the bell."
> "One is green; one is purple."
> "They are the same color."

The statements of comparison were subdivided into three categories:

i. Use of relational terms

When relational terms were used to make the comparison, the statement was classified as an expression of relationships employing relational terms. Some examples of statements assigned to this class were as follows:

Question #5

> "And they both have drivers."
> "And the van is just about as big as the truck."
> "The truck is bigger than the van."

The underlined words were classified as relational terms.

ii. Use of comparative words.

In the statements of comparison in which nouns, adjectives, or verbs, singly or in phrases, were used to specify the discriminating features within two, or three, stimuli and to show the interconnection of the features in a compound sentence or in one or more simple sentences, the statement was classified in the category of use of comparative words. Some examples of statements assigned to this class were as follows:

Question #1

"They are different shape."
("They" refers to the two stimuli.)

Question #2

"The jar of jelly beans has solid in it, the pill has got powder in it."

Question #4

"And they're all for walking around."
("They're refers to the three stimuli.)

The underlined words represent the words which specified the discriminated difference or similarity in the common features within two, or three, particular stimuli.

iii. Other

The third category was the statement of comparison in which only one of the common features was specified, or two, and the other was implied. For example, the statements "One has a taste and one doesn't," and "One shoe and one boot have laces, and the slipper doesn't," were included in this category. The sentences usually consisted of compound sentences or simple sentences.

Statements of comparison were seen to be indicative of an ability to perceive, select, and abstract common features in two or three stimuli and growth in language competence in the use of labels and relational terms and in language structure. The degree of explicitness in speech behavior is dependent on the labels for the comparative words and relational terms available to the child and the use of them in sentences.

The total number of comparisons in each question in which one or more of the three criteria for statements of comparison, relational terms, comparative words, and other, were used by the individual were recorded and tabulated as statements of comparison. In addition, the individual's total number of statements of comparison in each question employing relational terms and the total number of statements of comparison in each question employing comparative words were recorded and tabulated under the separate headings "relational terms" and "comparative words."

In Table 5.41 is presented the mean scores for each question of total number of statements of comparison, the total number of statements of comparison which employed relational terms, and the total number of statements of comparison in which comparative words were used. The trends as shown in the mean scores regarding total number of statements of comparison can be traced in this summary:

In questions #1 and #5, the mean scores for Group O-H were significantly higher than any of the other groups.

In questions #2, #3, #4, and #6, the mean scores for Group O-H and Group O-A were higher than those of the younger groups.

In questions #7 and #8, the mean scores showed a scatter among all groups.

In questions #1, #2, and #4, the mean scores for Group Y-H were higher than for group Y-A.

The mean score for all groups were considerably higher in question #3 (truck and V. W. van) in which the stimuli consisted of numerous

Table 5.41

Mean Number of Statements of Comparisons and Statements of Comparison Employing Relational Terms or Comparative Words

Questions	Expression of Relationships	Group Y-A	Group Y-H	Group O-A	Group O-H
1	Statements of Comparison	5.0	6.3	6.0	7.3
	Relational Terms	0.5	0.3	1.0	2.8
	Comparative Words	2.5	3.5	3.8	2.8
2	Statements of Comparison	4.8	4.8	5.5	6.8
	Relational Terms	1.5	0.8	1.5	2.5
	Comparative Words	2.8	3.0	2.5	3.5
3	Statements of Comparison	5.3	8.8	10.5	9.3
	Relational Terms	3.8	3.0	4.0	4.5
	Comparative Words	1.5	5.0	5.3	4.8
4	Statements of Comparison	2.5	3.8	4.8	4.8
	Relational Terms	0.5	0.3	0	4.0
	Comparative Words	1.8	2.5	3.8	3.3
5	Statements of Comparison	5.0	4.8	3.5	8.0
	Relational Terms	2.8	1.5	1.3	3.0
	Comparative Words	1.8	2.8	1.3	4.3
6	Statements of Comparison	2.3	2.3	4.0	4.5
	Relational Terms	0.3	0	2.0	1.5
	Comparative Words	2.0	2.0	1.8	3.0
7	Statements of Comparison	2.0	1.8	3.3	1.3
	Relational Terms	1.5	0.5	1.8	1.0
	Comparative Words	0.5	1.3	1.3	0.3
8	Statements of Comparison	1.0	1.3	0.5	0.8
	Relational Terms	0.5	0.3	0	0.8
	Comparative Words	0.3	0.8	0.5	0

parts.

The lowest mean score for all groups occurred in the point of view questions, #7 and #8.

In summary, there was considerable fluctuation of total number of statements of comparison in the four groups in the various questions. The findings pointed to a greater number of statements of comparison first for Group O-H, then for Group O-H and Group O-A, and then for Group Y-H in comparison to Group Y-A. These results suggested that the ability to perceive, abstract, and to relate common features in the comparison of two or three stimuli and growth in language competence as measured by the occurrence of statements of comparison in the subjects' responses, according to the criteria established for this study, is a function of increasing age and greater language facility within an age group. These conclusions were supported by the findings for listing abstracted features and reduced comparisons as shown in Table 5.38 and Table 5.40. However, the degree of explicitness in speech behavior is dependent on the labels for comparative words and the relational terms available to the child and the use of them in sentences. This aspect of the data will be examined in the following discussion.

Comparative words and relational terms. The following analysis will focus on the use of comparative words and relational terms in statements of comparison. The frequency of occurrence of comparative words and relational terms as shown in Table 5.41 will be examined followed by the analysis and presentation of specific language samples for the purpose of showing qualitative changes with regard to the implicit-explicit dimension.

The trends regarding total number of statements employing relational terms and comparative words for each group as shown in Table 5.41 are summarized in these results:

Range of Mean Scores: Total
Number of Relations Terms

Group Y-A:	0.3	-	3.8
Group Y-H:	0.3	-	3.0
Group O-A:	0	-	4.0
Group O-H:	0.8	-	4.5

Range of Mean Scores: Total
Number of Comparative Words

Group Y-A:	0.3	-	2.8
Group Y-H:	0.8	-	5.0
Group O-A:	0.5	-	5.3
Group O-H:	0	-	4.8

The total number of relational terms employed in the four groups was lower than the use of total number of comparative words. Group O-H employed considerably more relational terms than any of the other groups as indicated by the range of mean scores. The range of mean scores for Group Y-A was similar to that of Group O-A. The range of mean scores for Group Y-H was the lowest of all the groups.

With regard to the use of comparative words, the upper limits of the mean scores were higher for the comparative words than for the relational terms, with the exception that the upper limit of the Group Y-A range was lower. The ranges of mean scores of number of comparative words were similar for Group Y-H and were greater than the other two groups.

The patterns appearing in the analysis of mean number of statements of comparison employing relational terms and mean number of statements of comparison employing comparative words were as follows: comparative words were used more frequently than relational terms; the older high language users used relational terms more often than the other groups; the performance of Group Y-H was the lowest of the groups in use of relational terms; and the performance of Group Y-A was the lowest of the groups in the use of comparative words.

In an analysis of the language samples in which relational terms and comparative words were employed, relational terms were found to be used most often to refer to the similarities among the common features, whereas comparative words were used more frequently to speak of the differences.

Two patterns were apparent in the use of relational terms:

a. The variation in kinds of relational terms which were used and the increase in the number and the nature of more complex sentences in comparing stimuli in the four groups appeared to be determined, to a great extent, by the complexity of the question. The sentences were relatively simple in questions one, two, three, and five. However, a greater number of responses in questions three and five carried more information. The sentences tended to increase in complexity in questions four, six, seven, and eight due to the specific requirements of the multiple comparison, the definition of a birthday and an anniversary, and the comparison from the point of view of others.

b . In addition to employing a greater number of relational terms in comparing stimuli than the younger groups, the sentences of the older groups tended to reflect a higher level of conceptualization of thought, the use of a greater repertoire of words, and the inclusion of a greater amount of information. This trend was particularly apparent in the language samples of Group O-H.

In this study, the word "both" was considered to be a relational term. It was the most frequently used relational word in showing similarity among common features in the comparative objects, particularly in questions one, two, three, and five. When other relational words were employed, they usually expressed the difference among the common features of the comparative objects. The ratio of the use of "both" to the use of other relational terms was greater for the younger groups than for the older groups in questions one, two, three, and five. For example, in question two, the word "both" was used four times in Group Y-A and three times in Group Y-H while in each of these two groups only one other statement showed the use of another relational term. In Group O-A, the word "both" was used as a relational term three times and there were three comparisons employing other relational terms. In Group O-H, "both" occurred five times. The sentences in which the word "both" was a relational term were usually simple sentences. Examples of the occurrence of both as a relational term were: "They've both got lids," and "They are both edible," (a Group O-H response) or "They both make noises."

In question three the relational term "more than" was frequently used along with the word "both." In addition to "both" appearing as a high frequency relational term, "bigger than" and "more than" occurred several times in the responses in question five.

The following are examples of an increase in kinds of relational terms employed in a comparison of two stimuli and an increase in amount of information carried by statements of comparison from the younger groups to the older groups in questions one, two, three, and five:

Question #1 (bell and jelly beans)

Group Y-A: "So the weight of both of them I'd say the jar would be heavier than the bell because there's more things in it and they make it more heavier."

Group O-A: "The jar is bigger than the bell."

Group O-H: "The bell is quite small in comparison to the jar."
"The bell and jelly beans are the same in the manner that they can be the same color."
"Jelly beans can also have different colors than the bells."
"Jelly beans weigh less."
"The bell is more dented in."

Question #2 (powder and jelly beans)

Group Y-H: "The white one's smaller."

Group O-A: "....but this is bigger than this one."
"The pink, yellow and green colors are kind of soft like the white...the white dust in the other jar."
"And the container doesn't break as easy as the jar."

Group O-H: "The pill bottle is a lot smaller; different weight. The jelly beans are heavier."
"Jelly beans weigh more."
"Flour and jelly beans are the same in the manner that they're both can be used for cooking - jelly beans for decoration and cooking."
"If you want to have a cup of jelly beans and a cup of flour, you'd have to have more flour and less jelly bean."
"Jelly bean are probably more larger than pills."
"They're both the same shape..except one is bigger than the other."

Question #3 (truck and V. W. van)

Only a sampling of the "more than" comparisons are given.

Group Y-A: "And this one's got fairly more windows."
"Probably carries lots more things, except this would carry cargo; this would carry people."
"And the van is just about as big as the truck."
"And if the semi-trailer ever crashes, it can twist over very badly. The camper is it's not as dangerous."
"The truck that you keep things in is higher, larger than the bus."

Group Y-H: "One's got a quite little fatter..fatter body."
"One's a little bit higher than the other."
"They are different because one is bigger than the other one."

Group O-A: "One has a bigger stronger engine; the other doesn't."
"And this refrigerator truck likely travels more places to give wieners and things like that to other stores."
"...and the refrigerator is bigger than the Volkswagon."
"The one on the left looks more luxurious than the one on the right."

Group O-H: "The refrigerator service would use more gas because it has to keep everything cool and your volkswagon is just you know doesn't use much gas except for passengers."
"The refrigerator service can be a damgerous truck if not any lights on it in case of you know to protect it on

the highway and with the Volkswagon there's only your headlights and your backlights."

Question #5 (school and theatre)

Group Y-A: "And..a theatre there's less kinds than in a school."
"And a screen is much bigger in a theatre than in a school."
"The school is probably more bigger than the theatre."

Group Y-H: "And sometimes a theatre has more seats."
"A school is bigger than a theatre."
"And a school isn't as fancy as a theatre."
"And a school doesn't have a screen like a theatre does."

Group O-A: "A school's more homely looking."
"Well (a school) more it's not comfortable. It's hard. It's strict while in a theatre you can do anything you want."
"And they would have lots of seats but only in one room and the seats would be more comfortable in a theatre."
"The school would probably be bigger than a theatre."

Group O-H: "Usually your theatre, unless it is a very small theatre, accommodates quite a few more hundred if it's bigger theatre than your school."
"It depends what kind of theatre-if it could be a modern one, it would look a lot nicer than some schools."
"You're demanded by the law that you have to go to school until you're sixteen unless you have special permission as in a moviet theatre you can leave whenever you want."
"School can home more people."
"And if they each have films, the theatre would have a lot bigger one."
"I'd think you'd probably pay more, depends how many movies you go to see in a theatre."

> "Movies are more interesting, but it's sort of the lazy way out."
> "You don't really have to dress up as much in movies as you go to school but you can wear whatever you want."

In question four, the multiple comparison of the shoe, the boot, and the slipper, a few of the subjects seemed unable to relate the common features of three objects in one comparative statement. Some subjects observed the attributes and communicated what was observed in the single object attending to each object in turn. Others made comparative statements about two objects and omitted the third. The frequency distribution of this variation in approach to question four is shown in these results:

Groups	Y-A	Y-H	O-A	O-H
Attended to the single object:	1	1	1	
Attempted a comparison of two objects and omitted the third:			1	
Made a multiple comparison:	3	3	2	4

Examples of use of relational terms in question four were:

Group Y-A: "You wear them all at certain times."
"The runner is different color from the boot and the boots different color from the runner, the boot's a different

color from the slipper, the slipper's different color from the boot. And they're all for walking around."

Group Y-H: "The biggest one is number two; probably the smallest one number three; the in between s number two."
"And they're different because one is small and one is bigger and the other is tallest and bigger."

Group O-H: "And two of them have more of a heel than the slipper does."
"And the boot is deeper than the rest - the other two of them."

The comparison of a birthday and an anniversary in question six involved a definition of the abstract concepts of a birthday and an anniversary. Two subjects in Group Y-A; one subject in Group Y-H; and three in Group O-A did not attempt any kind of a definition. Their comparisons were based on the concrete aspects of these two occasions: presents, parties, and the people invited to the celebrations. All of the four subjects in Group O-H attempted a definition. These examples show the changes in the definitions of the two concepts from the younger groups to the older groups:

Group Y-A: "The anniversary like when somebody gets married and then like let's say June the thirteenth, the twenty-eighth, and then the next year June the twenty-eighth those people will have an anniversary and the birthday like when you're born the next year after that this very day that you get born is your birthday."
"Well a birthday and anniversary is different because a aniversary is only after you get married and like you see the date you get married and a birthday is when you were born."

Group Y-H: "Anniversary is when your mom and dad have their anniversary is when they get married and your birthday is when you get born."
"Now a birthday is celebrating the birth day of someone and an anniversary of celebrating the marriage day."

Group O-A: "It's (birthday) something to celebrate about. Same with an anniversary but an anniversary is when you celebrate something about when you celebrate. Well a birthday is when you celebrate how old you were and how many years and your birth, but an anniversary is when you celebrate how many years you've been married."

Group O-H: "Both are joyous occasions. A birthday is one part of life but an anniversary is another main part of your life.......An anniversary and a birthday are sort of the same, you're counting up years - hold old you are and how many years you've been married."
".....birthday is when you're born and an anniversary is when you're married."
"Birthday you really celebrate how old you are and anniversary you celebrate how long you've been married or how long you've had something."
"And..one of them you're celebrating so many years you've been living and the other one maybe so many years you've been at a job or you've been married so many years."

All of the subjects' responses suggested an attempt to compare the boot and the slipper from the point of view of an ant in question seven. The number in each group who were successful in maintaining the point of view of the ant throughout the response is shown in these results:

Group:	Y-A	Y-H	O-A	O-H
Point of View of an Ant:	1	3	3	4

Some examples of use of relational terms in making the comparisons of the boot and the slipper from the point of view of the ant were as follows:

Group Y-A: "He'd say..might be able to get under a boot, but maybe not a slipper cause it doesn't have such a big heel."
"I think he'd have in his mind that they would both be used for wearing."
"The ant would think that the boot's a lot bigger than the slipper."
"The ant would say that they're both big, but the boot is bigger."

Group Y-H: "Compare them to size."
"And he would say that they were not alike because one was smaller than the other."

Group O-A: "The boot..larger than the slipper."
"The slipper flatter than the boot."
"The boot more odd shaped than the slipper."
"One's higher off the ground than the other."
"The ant would compare the boot and slipper by saying the boot is bigger."
"And the slipper would probably be more comfortable."

Group O-H: "The ant would probably see the different shapes and probably notice that one would be more slippery than the other."
"And it (slipper) would be much easier to climb."
"Well it's not as big as the boot."
"Well they'd both be very big to him."
"He'd be able to go under the big one more easily than he would be able to go under the shoe. It would be easier under the boot."
"And it would be easier to get into the slipper because it's not quite as tall and also it's made of cloth and the boot looks like it's made of rubber."

These are examples of use of figurative language in making comparisons of the boot and slipper from the point of view of the ant:

Group Y-A: "If an ant was looking at a rain boot, it'd think it's a big giant and if it was looking at a slipper it wouldn't think, it'd think it's still a giant but just a little one, just a little sort of a giant."

Group Y-H: "And the ant would think that the boot was giant and the slipper was the giant's son or daughter."

Group O-A: "Little small ant looking at a slipper or boot would think it some kind of a giant mountain."
"There's a tunnel underneath the boot."

Group O-H: "He would think that maybe a slipper could be a huge mountain, quite high......you know a mountain with faces on it. Since this has sort of a pattern he might think of something like that, as a huge mountain. He could think of a slipper as maybe a huge train....hundreds and hundreds of boxcars loaded on with your engine at the very front, at the toe of your slipper growing longer and longer as it goes along."

> "The boot looks like a mountain and the arch on the underpart of the boot looks like an underpass or a bridge or something to go under."

In the last question in which the subjects were requested to compare the boot and the slipper from the point of view and feeling of father reading the newspaper, the instructions did not state explicitly that the requirement was to make a comparison. Ten out of the sixteen subjects attempted to make a comparison. Only five of the subjects employed relational terms. The examples of the responses employing relational terms are given:

Group Y-A: "In slippers, he'd feel much more comfortable because they would be more relaxing."
"Boots wouldn't be as comfortable as slippers."

Group Y-H: "But he would be sort of so engrossed in the newspaper that he couldn't really feel the relaxation or feeling when he put the two different things on."

Group O-H: "I think my dad would feel more comfortable in slippers than boots because the boots they cut off the circulation."
"And they're a lot more harder on the sole and they have a big heel and the slippers are soft and they're not as big and they're nice and loose."
"And if he had on the boot, then his feet would be heavier and he wouldn't be able to move around as freely as he would in a slipper and they would get hotter than they would in a slipper."

Comparative words were used mainly to point to differences in the abstracted common features in comparing stimuli. Much less frequently, were comparative words used to point to similarities among the common features. In the sentence "They're all footwear," "footwear" was considered to be the discriminating word for the three stimuli implied by the use of "they're." All of the groups employed simple sentences and simple compound sentences in which the discriminating words or phrases identifying the differences could be lifted from the sentence without affecting the meaning to any extent. Similar to the patterns noted in the use of relational terms, the trend for the older groups, particularly Group O-H, was toward greater conceptualization of thought, use of a greater repertoire of words, and more frequent employment of complex sentences in which the discriminating words identifying the differences could not be lifted without affecting the meaning of the sentence. There was a tendency toward greater use of more complex sentences in questions four through to eight in all groups.

The following examples show the changes in responses in the groups in the use of comparative words or phrases. Questions one and five, representing a relatively simple language task and a more complex language task in comparing stimuli were selected to illustrate these changes. Therefore, most of the responses employing comparative words in these questions are included in the illustrations. In addition, a few compressed examples of use of comparative words in a multiple comparison are cited from question four. In the illustrations which follow, only the discriminating words or phrases identifying the differences are cited wherever it was possible to lift them from the sentences without affecting the meaning; the whole sentence or sentences are given in which words could not be isolated without affecting the meaning:

Question #1 (jelly beans and bell)

Group Y-A: "rung" / "eaten"
"jelly beans" (inside)/ "steel ball"
"metal"/"glass"

"In this jar there are jelly beans and right here there's a little kind of bell."
"Has (the bell) a very pretty sound when it rings and the jelly beans can't hear them, only when they're really crunchy."

Group Y-H: "ring on the top of it" / "only a lid"
"clinkity-clank" / "smooth sound"
"candy" / "metal"
"silver..gold" / "black, pink, yellow"
"round triangle" / "steeple in a church"
"nearly as big as your hand"/"nearly as big as your finger"
"gold with decoration on it" / "different colors"
"oval shaped" / "circle shape"
"sort of like a round rectangle" / like a round triangle"

Group O-A: "tall and skinny" / "round and tubby"
"round handle" / "round lid"
"bumps" / "straight and smooth"
"(bell) inside..sort of gray" / "jar you can see through"
"different colors" / "only one color"

"One has a rough feeling and one has a smooth."

Group O-H: "gold" / "red top and clear"

"The bell has a piece of wire and a little piece of metal for its contents if you want to call it that; the jar has about twenty or twenty-five jelly beans in it."
"I find that on the bell there's a ring around it and on the jar there are on when you screw up the cap there is sort of a ring around that."
"They are used for different purposes, the bell for calling or warning somebody; the jelly beans for special occasions."
"Bells are used in different manners, for churches and warning people and jelly beans are only used for eating."
"Bells are a warning or sort of a symbol or something; jelly beans really aren't - you can only eat them.

Question #5 (school and theatre)

Group Y-A: "school you learn other things besides just seeing movies and theatre you just see movies"
"quiet" / "noisy"
"instruments" / "worksheets or something"
"desks" / "chairs"

"A school is used for learning and ...a theatre is probably used for watching ballet, watching concerts, and things like that."
"And they teach you how to do like reading and arithmetic and the most important things that you should know and the theatre like you learn very good plays and you do it in the theatre for other people."

Group Y-H: "(theatre) sit down quite a lot of times" / "school you sit down lots of times to do work" "have to work" / "just sit and watch a movie"
"recesses" / "intermissions"
"watch movies" / "do work and maybe watch movies"

"In the school you do work, use a pencil; theatre you see plays but not too often."
"And in schools you go twice a day and in theatres, depending how much you watch movies, you go maybe once a week or twice a week or something but you don't go twice a day."
"And usually when you go to the theatre you go in a weekend; in schools you have to go in the week day, but in boarding school you go like you stay there till holiday time."
"In schools, there's mostly children and not very many teachers and in theatres it can be both, like maybe the same number of both."

Group O-A: "big screen" / "little screen"

"A theatre is used for making money and entertainment and showing movies; the school is for teaching and learning Phys. Ed."
"And teachers help you and learn things but at a theatre you just watch shows and sit and things like that."
"But at school you have desks, you've got pens and you write; at theatres you just sit there and watch."

Group O-H: "sell popcorn, drinks, etc." / "have just water"
"big huge screen" / "a small screen"

"In school you're not allowed to get out of the classroom unless you know it's for recess or you have to go to the washroom; in a theatre it's sort of a freewill place - you can do whatever you wish whenever you wish."
"And you have to pay when you go into a theatre and in a school you have to pay. You don't have to pay every day; you just pay a fee for a year."
"School you learn and movies, if it's a bibliography or something on a special person, like you learn the same."
"And movies could be sad or happy and adventurous or mystery or something like that and school is sort of the same thing every day but you get used to it and you really like it."
"And there some subjects you don't like and like at movies you choose you own movies you want to go to. You're really not told what to do."
"And in a theatre...the chairs there are made differently like they have all the cushion stuff and everything and in school they're just made like out of wood."

Question #4 (shoe, boot, slipper)

Group Y-A: "runner" / "boot" / "slipper"
"for running" / "for winter for the bush" / "for walking around in the house"
"boot" / "bedtime slipper" / "shoe used to go downtown"

"And the boot's green with yellow laces and the shoe's red with white laces and the slipper is checkered and the other part of it is black."

Group Y-H: "red" / "green and one's sort of a limy color" / "blue and red and blue"

"One's got white laces, one's got yellow laces, and the other one hasn't any laces."

Group O-A: "Used for track and running" / "hiking" / "comfort"

"One's made of rubber; two are made out of cloth."
"The one I just finished is a boy's shoe, the same with the one I'm going to tell about, and the other looks like it could be a girl's or boy's shoe."

Group O-H: "red and white" / "green-yellow" / purplish-blue and red with gold and black"

"Two of them high heels, not high heels, big big heels and one has small."

> "The shoe has a thing, a thing at the back that you can hold on to to help put your foot into it; two of them do up with laces."

Relational terms and comparative words were used by the younger subjects and the older subjects. The frequency and variety of relational terms was influenced to some degree by the complexity of the questions, but more so by the maturity and the greater language facility of the subjects. The relational terms which were used were "both," "more," "more than," "less," "heavier," "bigger," "biggest," "smaller," "smallest," "tallest," "as easy as," "fatter," and "higher." A number of these relational terms such as "bigger" and heavier" were evidence of the subjects' growing facility to attempt a quantitative analysis (Hennings & Grant, 1973, p. 20). Maturity and language facility also were factors in effective use of comparative words. Effectiveness in the use of both relational terms and comparative words was the greatest in the older high language users.

Summary

The descriptive task "Comparison and Contrast" was instrumental in obtaining an abundant amount of information regarding patterns of growth in abstractness of thought and in explicitness in the expression of thought among children in two age groups and of varying language facility in the areas of organization for the task, quantity and quality of abstracted common features in relating two or three stimuli, and the expression of the relationships in making comparisons. The presented questions of increasing complexity not only influenced the amount of language communicated by the various groups but the degree of abstractness of thought and explicitness in expression of thought in all of the groups. The more abstract questions provoked greater abstraction of thought and conceptual language behavior, particularly in the older groups.

In the realm of organization of the task which focused on the developmental aspects regarding growth in ability in the communication of the differences and similarities of the abstracted common features in relating two or three stimuli, the subjects at all levels tended to intersperse the specification of differences and similarities to some degree in the relatively simple questions. However, there was also evidence in the simple questions of a gradual transition in occurrence of number of "differences" to number of "similarities" from the younger groups to the older groups. Group O-H showed the least reliance on specification of differences. In tasks of increasing complexity, the older groups tended to revert to a greater reliance on noting differences.

There were differences in total number of abstracted common features in the various questions. Stimuli with numerous parts yielded greater number of comparisons and the very complex questions yielded a minimal number of comparisons. The older groups only produced greater numbers of responses over the younger groups in the last three most complex questions.

The most frequently identified categories of meaning in the abstraction of common features in comparing stimuli were similar to the most frequently identified categories of meaning in the descriptive task "Criterial Properties." They were limited to mainly color, function, use, and part-whole relations. Number of categories of meaning and other criterial properties which were rated as "conceptual" responses increased consistently with the increase in complexity of the questions with the exception of question seven. Conceptual responses were communicated by some subjects in all of the groups, however, the greatest number of conceptual responses occurred in Group O-H. The older groups' responses to question five included a considerably higher number of conceptual responses than did those of the younger children.

The expressions of relationships in the comparisons were classified as merely listing isolated abstracted features; reduced comparisons which employed relational terms but due to failure to point to one of the stimuli were considered to be incomplete comparisons; and the statements of comparison. Two major subclasses within the statements of comparison were the statements employing relational terms and statements employing comparative words. The subjects in general listed few isolated features and produced few reduced comparison. The frequency of listed abstracted features was lower for Group O-H than for the other groups. The number of reduced comparisons was higher for Group O-H than for the other groups. The analysis of the statements of comparison suggested that frequency of statements of comparison, and use of relational terms and comparative words are a function of maturity and language facility. The older children used more relational terms in making comparisons than did the younger groups. The examination of the language samples of the four groups supported these findings providing evidence that the older groups, particularly the high language users, operated at higher levels of conceptualization of thought, used a greater repertoire of words, showed more depth in word meaning, and included greater amounts of information in their sentences than did the younger groups.

V. SEQUENCING

The coherence of a discription of an event is dependent on the sequential arrangement of the elements. To convey how something happened or how something is organized, the discrete subunits of an event must be identified, the chronological ordering of the event must be perceived, and a sequential order must be assigned to the subunits (Hennings and Grant, 1973, p. 20). Two questions of varying degrees of complexity were selected to explore the language performance of children in sequential tasks regarding the identification of the essential subunits of a given situation, perception of the chronological order in a given event, the arrangement of the subunits in order of occurrence, and use of sequential relational terms as expressed in the individual responses to the questions. One of the two description requirements formed the basis for the analysis of the responses in each of the questions:

a. Arrangement of the logical sequence of actions in a given situation and the expression of the sequential relationships of a particular event.

b. The expression of sequential relationships among preceding and subsequent stages.

1. Arrangement of a Logical Sequence of Actions

In the first question, each subject was required to describe what he would do if a friend with whom he was playing in a park two blocks from their homes fell and broke a leg. The individual responses were tabulated in summary form according to the categories established for this particular analysis. These were the categories which were established:

Identification of the Subunits
Number of Subunits
Reasonable Priorities
Reasonable Sequences
Number of Sequential Relational Terms
Number of Tentative Statements

The categories were derived from an analysis of what would be involved in a situation in which an individual might be alone some distance from his home with a friend who had a broken leg and from an analysis of the information contained in the subjects' responses. The subunits were the actions which might be undertaken by the individual in getting help for an injured friend. Eleven different actions were expressed by the individuals in this chronological order:

Check on Condition of Friend
Make Friend Comfortable
Decision with Regard to Leaving Friend
Reasons for Not Moving Friend
Summon Help
Notify Friend's Parents
Return to Friend
Make Friend Comfortable*
Get Ambulance or Doctor
Get Friend to Hospital
Notify Friend's Parents*
Notify Own Parents
Friend's Recovery

The categories "Make Friend Comfortable" and "Notify Friend's Parents" were inserted at two different stages, as shown by the asterisks, since they appeared at these two different stages in the various responses. "Number of Subunits" represented the total number of actions suggested by the individual. "Reasonable Priorities" took into account the subject's understanding of what was involved in a broken leg. For example, the subject who said that he would notify his parents and then give first aid to the friend failed to convey the realization that a broken leg required medical attention and was not given any credit for "Reasonable Priorities." The category "Reasonable Sequence" posed the question, Did the subject's arrangement of actions in order of occurrence reflect perception of the chronological order of actions? A category was established for tabulating the number of sequential relational terms employed by the individual in the arrangement of his actions in order of occurrence. According to the responses all of the subjects spoke of their plan of action as a happening remote in space and time, in terms of condition of what they "would" do. The condition in some responses was underlined by the presence of such tentative statements as, "If my friend broke a leg..." Therefore, the category "Tentative Statements" was considered pertinent for the analysis.

In Table 5.42 is presented the subunits or actions identified by the individual for getting help for the injured friend. The asterisks indicate the actions noted by the subject.

Table 5.43 shows the summary of the individual responses. The asterisks indicate that the reasonable priorities and reasonable sequence were achieved. As shown in the subcategory "Reasonable Priorities" in Table 5.43, all of the subjects, except #6 in Group Y-H, inferred that a broken leg was serious and that someone's help was needed in getting medical attention for the friend. Subject #6 was the one who spoke of giving first aid to the friend. His answer to the query how he might give first aid was, "Get a sheet and put it on his leg."

The mean number of subunits identified by the groups did not show any patterns in the groups:

	Y-A	Y-H	O-A	O-H
Mean number of subunits:	3.8	1.8	3.8	3.5

Table 5.42

Subjects Identifying Actions for Helping Injured Friend

Group	Subject	Subunits (Actions)												
		Check on Condition of Friend	Make Friend Comfortable	Decision Re: Leaving Friend	Reason for Not Moving Friend	Summon Help	Notify Friend's Parents	Return to Friend	Make Friend Comfortable	Get Ambulance or Doctor	Get Friend to Hospital	Notify Friend's Parents	Notify Own Parents	Friend's Recovery
Y-A	1	*				*	*			*	*		*	
	2					*				*				
	3					*				*		*		*
	4					*					*			*
Y-H	5					*					*			
	6												*	
	7				*	*		*		*				
	8					*								
O-A	9					*				*		*		
	10					*				*	*			
	11		*	*	*	*								
	12		*	*		*	*			*				
O-H	13		*			*	*		*	*				
	14					*			*	*				
	15		*		*	*								
	16							*		*			*	

* Actions noted by subject

Table 5.43

Subjects Achieving Criteria for Categories in Arrangement of Logical Sequence of Actions

Group	Subject	Number of Subunits	Reasonable Priorities	Reasonable Sequence	Number of Sequential Relational Terms	Tentative Statements
Y-A	1	6	*	*	2	1
	2	2	*	*	0	0
	3	4	*	*	2	1
	4	3	*	*	2	1
Y-H	5	2	*	*	0	0
	6	1			0	0
	7	4	*		2	1
	8	1	*	*	0	1
O-A	9	3	*	*	1	0
	10	3	*	*	1	1
	11	4	*		2	2
	12	5	*	*	0	2
O-H	13	5	*	*	0	1
	14	3	*	*	0	2
	15	3	*		4	1
	16	3	*		0	0

* Reasonable priorities and sequence achieved by subject

However, considerable variation in performance in the groups was discovered in the analysis of the nature of the responses in Table 5.42. An overview of the nature of the responses would suggest that the concern of the majority of the subjects in the four groups was to summon help. Most of the subjects said they would summon help from the nearest house. Two responses in Group O-A indicated help would be summoned from a passer-by. Two responses in Group O-H indicated the subjects would run to the nearest telephone booth. It is possible these responses, both in Group O-A and Group O-H, reflected greater perception of the urgency of the situation and perception of the world beyond the immediate environment by these eleven and twelve year old subjects as opposed to the perception of younger children which tends to be bound to the immediate home environment (Piaget & Inhelder, 1969, p. 129). A few responses, two in Group Y-H and one in Group O-H, indicated help would be summoned at home suggesting the possibility of continuing dependence on the immediate environment. It might then be conjectured that the subjects who said they would get help from the nearest house manifested growth in development in the direction of an awareness of their wider world.

The identification of the subunits in Table 5.42 tends to show three clusters of identified actions other than summoning help. The first cluster appears in Group Y-A which includes getting an ambulance or doctor, getting the friend to the hospital and concern for the friend's recovery. Again greater abstractness of some of the older subjects is evidenced in the clusters in Group O-A and Group

O-H in which the responses show concern with regard to making the friend comfortable, the need to stay with the friend, and the need to notify the friend's parents in addition to getting an ambulance or doctor.

The following is a summary of the number of subjects in a group who were given credit for a reasonable sequence as shown in detail in Table 5.43:

	Y-A	Y-H	O-A	O-H
Subjects achieving reasonable sequence:	4	2	3	2

The last three groups, particularly the high language users, appeared to have more trouble with sequencing than did Group Y-A. The following examples of individual responses would support the conclusion that most of the subjects who had trouble in sequencing attempted to speak of a greater number of identified actions or to express greater abstractness of thought, and to include more information in their statements about the subunits. The first two examples were selected to show that possibly a minimal number of actions in a response contributed, to some degree, to the success in arranging the subunits in order of occurrence:

Group Y-A - subject #2

> I'd...go to a house and ask them to phone an ambulance and the police.

Group O-A - subject #9

> I'd go to the closest home and phone a doctor and then the home of my friends.

However, this younger subject seemed to have little difficulty arranging six actions in order of occurrence:

Group Y-A - subject #1

> If my friend broke my leg..I'd probably see....if it hurt anywhere.. I'd see..where it was broken. And then'd quickly run to the nearest house to me and ask if I can borrow their telephone. So I'd phone my their mother and tell them what happened. And I'd call an ambulahce and see he'd take him to the hospital. And after I'd phone my mom and tell.... her what happened. And I'd say...I was sorry to use all their time from the house I borrowed the telephone from.

The following responses were selected to show that greater abstractness of thought in addition to a greater number of subunits caused the subjects difficulty in arranging their actions in sequential order:

Group Y-H - subject #7

> Now if my friend and I were playing ball in a park and my friend fell and broke a leg, this is what I would do. I would go to the nearest house and phone the doctor and tell him to come quickly to...the certain park that we were at and tell him what happened. And then....I wouldn't move him because it might hurt him more. And..then I'd stay with him and make sure that nobody else did any damage to him. And.....then when the doctor came I'd tell him how he broke his leg and...running and what he was doing and what I did for him and...so that he'd know..sort of what part of the leg was broken in or ......sort of ..he'd know how to fix it.

Group O-A - subject #11

> If my friend broke a leg while we were playing ball in the park, the first thing I'd do is............. well I'd try and make her comfortable where she was cause I wouldn't move her cause she could paralyze herself or she could break more or something or she could put it out of joint even more. Second I'd make her comfortable where she was. I wouldn't move her. The second thing I would do if nobody was around, I'd....well if somebody was around, I'd go and ask them to get help. And if nobody was around I think I'd probably go myself. If the injury was really serious and she was unconscious, I'd probably stay with her until a car came by or something. But if it wasn't serious, I'd probably go and ask her if I could leave her for about two minutes like, you know, if there was houses near. And so I'd go into the closest house and...well tell the lady who lived there or phone 999 or something - some emergency.

Group O-H - subject #15

> First of all I wouldn't move him cause...well it could damage it more. And second of all like if I knew where the phone booth was, I'd run to the phone booth. I'd cover him with a jacket or something like this. And then I'd call for help. And if no one came, I'd run to the phone booth and start dialing...either dial their home probably... most likely ...their home first...or 999. And just anyway..anything for a quick rescue.

Subject #12 (Group O-A) was successful in the arrangement of her ideas which were similar to those of subject #11:

17

> If my friend fell and broke a leg in the park two blocks away from my house, I would probably ......if anyone else was in the park, I would tell them to go and get someone in....a close house to phone the police or the ambulance. And I would stay with her. And if nobody was in the park, I would just wait until I saw someone walking down the street and I would tell them to go get somebody because my friend had broke her leg.

The trends regarding total number of sequential relational terms for each group, as shown in detail in Table 5.43, are summarized in these results:

	Y-A	Y-H	O-A	O-H
Mean number of sequential relational terms:	1.5	0.5	1.0	1.0

These findings are in line with the reasonable sequence findings in that in both categories Group Y-A was the top group. Groups O-H showed a little better performance in "Number of Sequential Relational Terms" than in the subcategory "Reasonable Sequence." The latter may be accounted for by the performance of subject #15 who had trouble sequencing yet employed the greatest number of sequential relational terms in her response.

The sequential relational terms employed by all of the subjects were limited to "and then," "and after," "and when," "second thing," "first of all," "second of all," and "and before." The responses of subject #1 in Group Y-A and subject #15 in Group O-H showed the greatest variation in use of sequential relational terms. These two responses were cited in the examples showing success and failure in arrangement of actions in sequential order.

The identified actions in all responses occurred in conditional sentences. The condition was usually indicated by the use of such verbs as "would tell" or "could get." A number of responses underlined the condition by the use of tentative statements which included conditional clauses. In the distribution of total number of tentative statements appearing in the four groups is shown the increase in use of number of tentative statements from the younger groups to the older groups:

	Y-A	Y-H	O-A	O-H
Total number tentative statements:	3	2	5	4

In addition to changes in frequency of occurrence of tentative statements in the groups, the tendency for the older groups to say more about the actions to be undertaken than the younger groups is evidenced in the following examples;

Group Y-A:

> "Well if I was in the park, playing with my friend and she broke a leg, I'd ask somebody to phone an ambulance and I'd ask if I could go with her to the hospital."
>
> "If my friend broke my leg, I'd probably see if it hurt anywhere.

Group Y-H:

> "And if they'd give us help, they'd probably help us with our friend."
>
> "Now if my friend and I were playing ball in the park and my friend broke a leg, this is what I'd do."

Group O-A:

> "Well, if my friend broke his leg while playing in the park, I'd probably go to the nearest house and phone their mother."

> But if nobody was in the park, I would just wait until I saw someone walking down the street and I would tell them to get somebody because my friend had broke his leg."

Group O-H:

> "I think that if my friend broke his leg while we were playing ball in the park that I'd tell him not to worry, tell him to sit down and not to move."
>
> "If my friend had a broken leg, I'd most likely go to the nearest telephone and phone the ambulance or the hospital and tell them to come to the right place."

It was noted that more inconsistencies in use of pronouns and verb tenses occurred in the responses in this descriptive task in which conditional sentences were used than in the previous descriptive tasks employing mainly the present and past tenses.

Summary. In this particular sequencing task of relatively simple complexity,there was little difference among the groups regarding the identification of essential subunits and perception of the chronological order of the subunits. Groups Y-H to O-H had less success in the arrangement of the subunits in order of occurrence than did Group Y-A. Factors contributing to the sequencing difficulties with maturity and with greater language facility were observed to be the greater powers of abstractness, inclusion of a greater number of subunits in a response, and the inclusion of more information regarding a particular action. However, the older groups' responses showed a greater frequency and content of tentative statements containing conditional clauses than did those of the younger groups.

2. Sequential Relationships: Preceding and Subsequent Stages

The analysis of the second question in the descriptive task "Sequencing" was concerned with the expression of sequential relationships among preceding and subsequent stages. In this question, the individual was presented with two pictures each showing a stage in an event - the first picture showed a boy with a bulb in his hand reaching for a pot and in the second picture the boy was watering the potted plant. The subject was requested to tell what happened before the first picture, what happened between the two pictures, and what happened after the second picture. The subject was required to focus on the instructions which included understanding the temporal terms "before," "between," and "after"; to identify the critical subunits of the two pictures; and to go beyond the given information and to make inferences regarding the identification of subunits pertaining to the preceding and the subsequent stages. Two categories, based on these requirements were established for the analysis of the individual responses: "Focus" and "Reasonable Inferred Ideas." In order to complete the answer to the question, the subject was also required to arrange the inferred ideas of each part of the question in sequential order. This aspect of the response was categorized as "Reasonable Sequence" and "Number of Sequential Relational Terms."

In the analysis of the category "Reasonable Inferred Idea," an inferred idea which related to the pictures of a preceding or subsequent stage and which reflected understanding of the stage was rated a stable idea ("S"), but an inferred idea which seemed not to be related to the particular stage or which indicated the subject's uncertainty about the inference was rated an unstable response ("U"). In the category "Reasonable Sequence," an "A" indicated the ordering of the inferred idea had been achieved, and a "C" represented a confused ordering of the inferred subunits of an idea. The analysis of the individual responses was tabulated in Table 5.44.

According to Table 5.44, only one subject in Group O-H showed difficulty in focusing on this task, whereas two subjects in each of the other groups failed to focus on the requirements of this question.

Table 5.44 also shows that the reasonable inferred ideas were stable and reasonable sequencing was achieved in all three stages ("before," "between," "after") in the responses of nine out of sixteen subjects.

In Table 5.45 is shown a summary of the subjects who failed to meet the requirements of "Reasonable Inferred Ideas" and "Reasonable Sequence" in all three stages. Groups O-H had three completely successful responses in comparison to two successful responses in each of the other groups. Table 5.45 also shows that an unstable response did not necessarily yield a confused sequence and that the sequences were confused in some of the stable inferred ideas. The unstable inferred ideas and the confused sequences only occurred in the first two stages. That all subjects achieved the requirements for the "after" stage may be due to such factors as the subsequent

Table 5.44

Reasonable Inferred Ideas and Reasonable Sequences: Stages One, Two, Three, and Number of Relational Terms Achieved by Subject

			Stages						
			I. "Before"		II. "Between"		III. After		
Group	Subject	Focus	Reasonable Inferred Idea	Reasonable Sequence	Reasonable Inferred Idea	Reasonable Sequence	Reasonable Inferred Idea	Reasonable Sequence	Number of Relational Terms
Y-A	1	No	U[a]	C[c]	U	C	S	A	5
	2	Yes	S[b]	A[d]	U	C	S	A	0
	3	No	S	A	S	A	S	A	2
	4	Yes	S	A	S	A	S	A	1
Y-H	5	No	U	C	U	C	S	A	2
	6	Yes	S	A	S	A	S	A	1
	7	No	U	A	U	A	S	A	2
	8	Yes	S	A	S	A	S	A	1
O-A	9	Yes	S	A	S	A	S	A	0
	10	No	U	A	U	C	S	A	2
	11	No	U	C	U	C	S	A	4
	12	Yes	S	A	S	A	S	A	3
O-H	13	No	U	C	S	A	S	A	2
	14	Yes	S	A	S	A	S	A	7
	15	Yes	S	A	S	A	S	A	4
	16	Yes	S	A	S	A	S	A	3

a. Unstable inferred idea.
b. Stable inferred idea.
c. Confused sequence.
d. Achieved sequence.

Table 5.45

Reasonable Inferred Ideas and Reasonable Sequence not Achieved by Subjects

		Stages					
		I "Before"		II "Between"		III "After"	
Group	Subject	Reasonable Inferred Ideas	Reasonable Sequence	Reasonable Inferred Ideas	Reasonable Sequence	Reasonable Inferred Ideas	Reasonable Sequence
Y-A	1	*	*	*	*		
	2			*	*		
	3						
	4						
Y-H	5	*	*	*	*		
	6						
	7	*		*			
	8						
O-A	9						
	10	*		*	*		
	11	*	*	*	*		
	12						
O-H	13	*	*				
	14						
	15						
	16						

* Subcategories not achieved by subject

stage not requiring the abstractness of thought as did the preceding and the "between" stages and children having more experience thinking about situations which come after than those which come before. In addition, the pictures may have influenced the performance. It was noted, then, that in question two, the sequential expression of preceding and subsequent stages, Group O-H had the least difficulty of all the groups, whereas in the first relatively simple question, the chronological ordering of actions in getting help for an injured friend, this group evidenced more difficulty than the other groups.

The following examples were selected from the first stage, the "before" stage, to illustrate the variation in responses between a stable inferred idea and an achieved sequence, and an unstable inferred idea and confused sequence in the four groups:

Group Y-A

stable inferred idea and achieved sequence

> He would have asked his mom if he could plant the seeds or whatever he's doing.

("The phrase "whatever he's doing" was interpreted to refer to the subject's difficulty in thinking of the label "bulb.")

unstable inferred idea and confused sequence

> Well if I was going to plant an onion first I'd get a bowl. Then I'd get the onions. I'd peel all the paper off of it or something like that - I forget what it's called. And then I'd put the onion in. I'd put some soil over it. And I'd sort of water it. (The question was repeated, "What happened before this picture?")
> He probably went to the store, bought a bowl. Then he asked his mom if he could buy some soil or get some soil. And he'd probably look and see if he had

a bowl. And if he did, he wouldn't bother to go to the store and just buy another bowl cause he'd be just a waste. And then he'd probably take the bowl and he'd put mud in it.

Group Y-H

stable inferred idea and achieved sequence

I'd say that the boy would just be getting out all the things to plant the things...he's going to plant.

unstable inferred idea and confused sequence

His mother told him to go down to the basement, get a pot and the plant, and bring it outside. Bring it ...the pot and the plant and bring it I guess upstairs so we can water it. That we could put the plant in the soil. So when we water it and it could grow.

Group O-A

stable inferred idea and achieved sequence

Well the boy just got a plant and wanted to go and plant it in a vase and he was going to get the vase.

unstable inferred idea but achieved sequence

I think this boy brought a tulip to put in his flower store.

Group O-H

stable inferred idea and achieved sequence

Well first of all the guy got some money and then he went to the store and bought a bulb. And then he walked back home. Then he walked downstairs to the basement. And there he's got the bulb in his hand and he's just reaching for the pot now and then he's going to plant it.

unstable inferred idea and confused sequence

The event before this picture would be first he'd need a pot full of earth, and a good pot of good

> earth. And have it some place that your plant will grow. And buy a plant, which he has in his hand, and if....plant it firmly and just make sure that you follow directions that it does grow.

In the following examples, selected from the second stage, the "between" stage, these were the variations in responses among the groups:

Group Y-A

stable inferred idea and achieved sequence

> OK! This boy's taking he's taking the pot off the shelf. And he's going to put newspaper under so he doesn't get the mud all over. And then he puts all the mud in the pot. And puts the onion or tomato or apple in. And then he puts it on a nice warm place. And then he takes it up, takes the newspaper out. And puts it in a.......sunny spot.

unstable inferred idea and confused sequence

> First he'd put the soil in the bowl. And then he might put it in the garden but then.....he'd put the onion in. No, first he'd put the soil in and then he'd probably wait a few hours and then he'd water it.

Group Y-H

stable inferred idea and achieved sequence

> He got the soil and planted the seeds.

stable inferred idea and confused sequence

> OK! He'd put in the soil.....He'd made a hole in the soil. He put the plant in or the seed in. And then covered it over. And then poured in water. Brang it upstairs. No, he'd bring it upstairs and then poured in....He brang it upstairs and poured in the water, dug a hole and put in the plant, covered it over and poured on the water.

Group O-A

stable inferred idea and achieved sequence

> The boy took the vase. And he put soil in the vase. And planted the plant. And watered it.

unstable inferred idea and confused sequence

> It was put in the sun. He put soil in it and then he watered it.

Group O-H

stable inferred idea and achieved sequence

> He's got the bulb now and he's ... putting ...in the dirt or the earth or whatever you want to call it. And then he's planted in the bulb - like the earth is only gone in halfway - then he puts in the bulb. Then he puts in the earth the rest of the way.

The variations in the responses among the groups for the third stage, the "after" stage, are shown in the following examples (The reader is reminded unstable ideas and confused sequences did not occur in Stage three):

Group Y-A

stable inferred idea and achieved sequences

> I guess they started to grow. And he still watered it. And then he transplanted it and put it in the garden.

Group Y-H

stable inferred idea and achieved sequence

> The plant would start to sprout up.

Group O-A

stable inferred idea and achieved sequence

> He left it and waited for it to grow and watered it everyday.

Group O-H

stable inferred idea and achieved sequence

> Well I think he'd put it in a place where there would be lots of sunshine. And he'd leave it for a day. Or if it was in the early morning they planted it, maybe water it at dinner time and then let it grow. And just leave it. And then in the morning again water it just a little bit. And the same process over and over, water and keep it in a good place. And when it gets to be big for the pot, you could start transplanting it.

There is ample evidence in the above examples to support the earlier indications that the older high language users were able to meet the requirements of this category more readily than the other three groups. However, this question appeared to tax the thought processes and language competencies of the older high language users to a considerable degree noted particularly in the failure of a number of subjects in this group to state their ideas succinctly. As for the younger subjects, their responses were rather tenuous including those which were given a credit for "stable inferred idea" and "achieved sequence." It is conjectured the inhibiting factors were insufficient background knowledge of bulb planting and delayed development of an understanding of temporal relations (Watts, 1944, p. 166).

It was noted that both the older and younger subjects' responses consisted of conditional sentences which resulted in inconsistencies in use of pronouns and verb tenses.

The variations in mean number of relational terms were as follows:

	Y-A	Y-H	O-A	O-H
Mean number of sequential relational terms:	2.3	1.5	2.3	4.0

In comparison to question one a greater number of sequential relational terms were employed in this question and the mean for Group O-H was considerably higher than the other three groups. The sequential relational terms employed in this question were "then," "and then," "after," "before," and "first." Two responses are given to illustrate a relatively high incidence of sequential relational terms in the responses of a younger subject and of an older subject:

Group Y-A

> Well after he could do this, he could do all sorts of things like play.....After he watered the plant, he would keep it in a sunny spot and go out to play. He could play football or something like that. Then he goes to tell his mom that the plant's all finished and that she can give it to a friend.

Group O-H

> After he brought the pot down, he got some earth from his mom and put it about half way...in the pot. Then he planted the bulb and then covered it up with more earth. Then he asked his mom if she had any fertilizer or anything. Then he's put it and laid on if she had any. Then he asked his mom where to get the ....watering can. So she told him it was in the

> garage. He went there and filled it up with just the right amount of water and started pouring it in.
>
> After he poured the water, he waited a few days and he saw some sprouts. And then he waited weeks and it finally grew up.

Summary. The second question in the descriptive task "Sequencing" was a more complex task than the first question. Ability to meet the requirements of this question appeared to be a function of maturity and language facility. Group O-H was consistently higher than the other three groups in the frequency distributions of focus, stable inferred ideas and achieved sequencing, and number of sequential relational terms. Also, the responses of the older high language users included more content and reflected greater facility with vocabulary.

IV. INFERENCE

Inferential thinking utilizes observable data and jumps beyond observable data. It leads thought from fact to generalization. The thinker-speaker is required to eliminate elements, to put together elements to form a whole, and to combine them in ways that result in patterns and structures not clearly visible before (Hennings & Grant, 1973, p. 23; Fournier, 1969, p. T12). All skills involve the use of inference to some degree or other.

This descriptive task consisted of six questions which were designed to explore how children use inference in the expression of relationships between combinations of objects, people, and events in given circumstances. There was a different description requirements for each of the six questions. The basic requirements were use of inference in the expression of relationships in these varying situations:

1. Objects in a given circumstance (car accident).
2. Individual persons in a given circumstance (teacher, plumber, model).
3. Two people in a given circumstance (injured player).
4. A character, setting, and an event (train and flooded tracks).
5. A character, setting, and an event (man boarding up the window of a house).
6. People, objects, and an event (two men surrounded by cars).

The nature of the various questions yielded particular kinds of information and therefore necessitated a two level analysis of the responses. The first level of analysis was concerned with the inferences and the explicitness of response elicited by each question. The second level of analysis investigated the quality, and quantity, of specific responses elicited by the basic query in a question and any additional queries. For example, in question one the basic question was, "What happened?"; an additional question was, "What clues did you use?"

1. First Level Analysis

The criteria in each question in the first level of analysis were the following:

a. Was the inference in each category reasonable?

b. Was the expression of the relationship involving inference in each category explicitly stated?

c. To what degree did the expressions of the relationships involve sentences containing clauses?

In the analysis, an inference was judged to be reasonable when the expressed relationships reflected the identification of critical elements in the stimulus. A response in which the expressed relationships were clear and coherent, through the use of relatively precise words and sentences, and the sequential arrangement of the subunits of the main idea of the stimulus, was considered to be explicit.

In Table 5.46 is presented the analysis of the individual responses in each of the six questions according to "Reasonable Inference" and "Explicit Response." The seventh column represents the number of questions in which the individuals achieved both a reasonable inference and an explicit response. Question two consisted of three parts and credit was allotted for a reasonable inference or for an explicit response when all three parts were judged to be reasonable inferences or explicit responses. Only the first part of the two sections in question four was considered in this analysis. The asterisks indicate that the criterion was met for a reasonable

Table 5.46

Subjects Achieving Reasonable Inferences and Explicit Responses

		Questions												
		I		II		III		IV		V		VI		
Group	Subject	Reasonable Inference	Explicit Response	Reasonable Inference	Explicit Response	Reasonable Inference	Explicit Response	Reasonable Inference	Explicit Response	Reasonable Inference	Explicit Response	Reasonable Inference	Explicit Response	Number of Questions Reasonable Inference and Explicit Responses
Y-A	1	*	*			*		*		*		*		1
	2	*		*		*	*	*		*	*	*	*	3
	3	*		*		*	*	*	*			*	*	3
	4	*		*		*	*	*	*	*		*	*	3
Y-H	5			*	*	*				*	*	*		2
	6	*	*					*		*		*	*	2
	7		*	*			*		*	*	*			1
	8	*	*	*		*	*		*	*				2
0-A	9		*	*	*	*	*	*	*	*	*	*		4
	10	*	*			*						*		1
	11	*	*	*				*		*				1
	12	*		*		*	*	*	*	*	*	*	*	4
0-H	13	*		*	*		*	*	*	*	*	*	*	4
	14		*	*	*	*	*	*	*	*	*		*	4
	15	*	*	*	*	*	*	*		*	*	*		4
	16		*	*	*	*		*	*	*	*	*	*	4

*Reasonable inference and explicit response achieved.

inference or an explicit response.

Table 5.47 shows the number of subjects in each group achieving reasonable inferences in each of the six questions. The mean number of subjects achieving inferences in the six questions tends to vary as shown in these results:

	Y-A	Y-H	O-A	O-H
Mean number of subjects achieving reasonable inferences:	3.7	2.3	3.0	3.3

Although the Group Y-A, Group O-A, and Group O-H means are similar, the Group Y-A mean is the highest of these. The Group Y-H mean falls well below the other groups.

The total number of subjects achieving explicit responses in the six questions in each group is shown in Table 5.48. The pattern appearing is that of a trend in questions two and five toward a progressive increase in number of subjects achieving explicit responses from Group Y-A to Group O-H. The total number of Group O-H subjects achieving explicit responses tends to be higher for all questions than the number in other groups, and especially in questions two, four, and five. There is a considerable difference in the mean number of subjects achieving explicit responses in the six questions for Group O-H in comparison to the other groups, which tend to be similar.

	Y-A	Y-H	O-A	O-H
Mean number of subjects achieving explicit responses:	1.7	1.8	1.8	3.3

Table 5.47

Subjects Achieving Reasonable Inferences
In Each Question

	Questions					
Group	I	II	III	IV	V	VI
Y-A	4	3	4	4	3	4
Y-H	2	3	2	1	4	2
O-A	3	3	3	3	3	3
O-H	2	4	3	4	4	3

Table 5.48

Subjects Achieving Explicit Responses In Each Question

	Question					
Group	I	II	III	IV	V	VI
Y-A	1	0	3	2	1	3
Y-H	3	1	2	2	2	1
O-A	3	1	2	2	2	1
O-H	3	4	3	3	4	3

The superior performance of Group O-H to the other groups is also seen in these results which show the means for each group of total number of questions with reasonable inferences and explicit responses achieved by individuals:

	Y-A	Y-H	O-A	O-H
Mean total number of reasonable inferences and explicit responses:	2.5	1.8	2.5	4.0

It is also noted in this distribution that the Group Y-H means are lower than those of the other three groups.

The conclusion derived from the absence of a definite pattern for the mean number of subjects achieving reasonable inferences in the six questions was the possibility that there is little difference in the performance of children age eight and nine and eleven and twelve in making reasonable inferences. That.the Group Y-A means were higher than the older groups may be related to differences in level of abstractness of thought between the two age groups. The results for explicit responses and individuals achieving both a reasonable inference and explicit response in a particular question tended to suggest that these functions are related to age and language facility. The results did not show notable patterns with regard to the complexity of the questions.

The following examples were selected to show the variability in the responses among the groups to the six questions. Due to the nature of the responses in category two, samples of language behavior in category two are not included in these examples. The examples were not selected to point specifically to achieved and not achieved inferences nor to not achieved explicit responses, however, the rating of the response as to reasonable inference or explicit response is noted for each example.

car accident

Group Y-A

subject #1 - reasonable inference and explicit response

> There probably were three cars driving down a road or maybe a highway. And one of the cars a person must have been not looking or must have been.... drunk. And he was driving and he was in front of a car behind him. He didn't know that there was a car behind him. He ..... he was going zigzag all over the place until all of a sudden probably his wheel started getting loose and probably spun around and the other car smashed right into him and the other car just went to pieces.

Group Y-H

subject #6 - reasonable inference and explicit response

> The wind blew the cars and they got off course and they crashed.

Group O-A

subject #11 - reasonable inference and explicit response

> A car is driving along and it collided with this other car. And it sent one car to the bridge into the railing. And it was all smashed up and wrecked up. And then the other car went off down the hill the other direction. And it is not as badly damaged as the other car. And I don't think there is

anybody injured in that crash. Yet there was cars still going by so that it was clear enough to let them go by. I think there's a road turned off from the bridge and probably the car came up there and it didn't see the stop sign and probably the other car came along and they collided together.

Group O-H

subject #16 - reasonable inference not achieved but explicit response

It looks like the car is stalled and the people gotten out. And they opened up the roof of the car thing. And they're checking it. And they they're going some place I guess. And it's just there open.

injured player

Group Y-A

subject #2 - reasonable inference and explicit response

He was playing football and he hurt his leg. Or else he was running and he fell and tripped. And he's getting his leg bandaided.

Group Y-H

subject #7 - reasonable inference not achieved but explicit response

Well in this picture, it looks like some sports player broke his foot in playing sports and the coach is putting some kind of taper on his ankle.

Group O-A

subject #12 - reasonable inference and explicit response

It looks like this girl was in a running meet, in a running competition and she fell and she sprained her ankle. And they took her into the nurses room. And...the coach is bandaging up her ankle.

train and flooded tracks

Group Y-A

subject #3 - reasonable inference and explicit response

> I'd wave the scarf in front of the train that's coming and just sort of stop it.

Group Y-H

subject #8 - reasonable inference not achieved but explicit response

> I'd run and get help if somebody was near enough to help me. And if they could help, then maybe we could both together stop the train.

Group O-H

subject #13 - reasonable inference and explicit response

> If I was Fred I'd take off my red scarf quite quickly and run up towards the train as fast as I could and madly wave my red scarf and yell as loud as I could and tell him to stop. And tell him not to go. Just go as far as the creek - around there - because that it was flooded.

man boarding up a window of a house

Group Y-A

subject #4 - reasonable inference but explicit response not achieved

> Well, he might want to go away or maybe he doesn't have any glass or something so he's boarding it up....so he might board it up so nobody can break the glass and get in.

Group O-A

subject #9 - reasonable inference and explicit response

> Well someone might have been playing baseball and threw or hit the ball through the window. Or someone might be throwing rocks and hit the window and broke it. The house might be being condemned.

Group O-H

subject #16 - reasonable inference and explicit response

> The house might be broken into and the window's broken. Or else it could have been burnt up and well mostly burnt up and he's just closing it down. Or else the store's just closed down. Or else it could of been that they're taking it down.

two men surrounded by cars

Group Y-H

subject #5 - reasonable inference but explicit response not achieved

> One car that was closest to the way out would go; the others would follow through but they would have to watch because it's quite a big jam and so many cars that could be touched very easily. It's hard. It would probably be very hard to get out of it. Of course a couple of cars would have probably....probably a couple of cars...couldn't help that they may have a little crash. They didn't couldn't help it cause it's quite a jam. Some cities it's pretty bad jam where cars get tipped over and stuff. This is a real big jam. Some cars are surrounded by other cars so they can't get out.

Group O-A

subject #10 - reasonable inference but explicit response not achieved

> Well they would have to wait because they couldn't do anything because of some of the cars parked and everything. So they would have to wait until the shopping centre closed, till everybody tried to move out.

Group O-H

subject #15 - reasonable inference but explicit response not achieved

> Well it looks like someone has piled up the entrance gate, and like ...the best thing to do is like....he'd get his car on the way. And then the first one would back up and then they'd go out and then would go out the door - just like that like in all in a line. And that's what I'd do.

Expression of relationships. A survey of number of expressions of relationships using inference which contained clauses pointed to few in number by all subjects. There were indications of a fewer number of such sentences for the younger groups than for the older ones. A relatively detailed analysis was done of the responses in question six with regard to the use of clauses in the expression of relationships in order to provide a sample of individual and group performance in the expression of relationships using inference. The analysis revealed these results:

	Y-A	Y-H	O-A	O-H
Total number expressions of relationships containing clauses:	6	8	9	9

The results for the younger high language users and the older groups were somewhat higher than the ones for the younger average language users. The relational words used in these responses were: "that," "if," "because," "so," "before," "what," "like," "until," "except," and "where."

Illustrations from question six are provided of expressions of inferred relationships which contain clauses. The illustrations also show an increase in information carried by the sentences of the older groups in comparison to the younger groups.

Group Y-A

> "Probably start getting some sort of plane that can carry cars and probably stick it under a car and lifting it over to another place."
>
> "If they couldn't do that, I don't know what they'd do."
>
> "They want to try and get out but they can't cause all the other cars are around their car."
>
> "They're trying to get out of this big jam, if they can - which I doubt."
>
> "Well try to get a few cars out of the way so some other cars can get out."

Group Y-H

> "Probably a couple of cars couldn't help that they have a little crash."
>
> "Let the front guy cars go first before and of the other cars start."
>
> "There's a traffic jam and I'm trying to decide what they are going to do."

"If they were in a parking lot, maybe some of them could - like the outer one could maybe try and drive away."

"They will try and move the cars so they can walk around in some space."

Group 0-A

"And then they'll probably have to sit and wait for the other cars to clear out before they can get theirs out."

"So they would have to wait until the shopping centre closed."

"It's an older part of the city because of the lighting and colors."

"They're going to hide in the cars until it is clear to go like so the police won't catch up with them."

"The people will probably have to wait until everybody else leaves the parking lot."

"They might walk home and then later on that night they could go back and get their car, if all the cars are gone."

Group 0-H

"There's only one way I can think of is by getting a couple of license plates and asking if people could move their cars."

"If there is a road there, it's O.K. but it's quite hard to see if there is one."

"I don't see a way of getting it out of there except there is a road and people move their cars."

"Well, it seems to me that these people are lost and they can't find their car."

"And they're walking around trying to find it in this parking lot, whatever it is where all these cars are."

> "Well, I'd say they'd be pretty angry and confused cause they wouldn't know how they'd get to their car and they may forget where it is cause all the cars are parked in there."

2. Second Level Analysis

The second level analysis investigated the quality, and the quantity to some degree, of the responses elicited by the basic query in a question and the additional queries in the questions. The analysis focused on performance involving use of the clues for the responses to questions one and two, alternative inferred ideas in questions four and five, and expression of feeling in questions three and six.

Object in a given circumstance. The second question in question one, the car accident, requested the individual subject to state the clues which had been used to tell what happened in the picture. The phrases identifying the clues in the individual responses were summarized according to groups in Table 5.49. The most significant pattern in this table is the greater variety of clues in the responses of the older groups than in those of the younger groups. The use of words in phrases also tends to show a trend toward greater precision and more content for the older groups. Two responses in Group Y-A point to the developmental factor of a continuing tendency to identify differences in responding to a question: "both doors wouldn't be open" and "the hood wouldn't be up."

Table 5.49

Summary of Stated Clues: Picture of Car Accident by Various Groups

Group	
Y-A	Y-H
"trunk's up"	"that car had all the doors open"
"doors are all open"	"windows" (open)
"a police car is behind it"	"car doors were open"
"3 cars" *	"cars stopped around the car"
"bridgerailing" *	"front hood was up"
"a road"	"some cars crashed"
"both doors wouldn't be open"	"tire's down"
"hood wouldn't be open"	
"this one and that car smashed in"	
"car spun around"	

* Irrelevant clues

Table 5.49 (Continued)

Summary of Stated Clues: Picture of Car Accident by Various Groups

Group	
O-A	O-H
"headlight is out"	"car is stalled"
"it sort of slants down"	"people gotten out"
"both doors are open"	"opened up the roof of the car"
"hood is up"	"checking car"
"trunk is up"	"it's ... open"
"front looks pretty smashed up" (back car)	"cars badly bashed up"
"man standing beside car"	"doors are all swung open"
"cars are badly smashed"	"wheels are all over the place"
"a man beside the car"	"cars don't usually go on sidewalks"
"man inside the not so badly smashed car"	"position the cars are in"
"man beside car ··· policeman"	"trunk was up"
"cars on the sidewalk"	"something like a police car"
"back is hitting against the rail"	"from past experience" *
"car ··· stopped over there and smashed up"	
"police car stopped down the road"	
"car ··· beside the railings"	
"... all smashed up"	

* Irrelevant Clues

Individual persons in a given circumstance. The subjects were required to identify the occupations of three different people and to give the clues which they used to make the inference. Tables 5.50 to 5.52 show the summaries according to groups of the inferred occupations for the pictures of the teacher, the plumber, and the model, and the stated clues used by the subjects to identify the occupations.

An examination of the stated occupations reveals little difference in the groups regarding the inference or the words used to identify the teacher, with the exception of two irrelevant responses, "making pictures" (Group Y-H) and "drawing" (Group O-A). With regard to the plumber, there is a progressive change from unstable inferences and use of words in stating the occupation to more decisive ones from Group Y-A to Group Y-H to Groups O-A and O-H as reflected in the following:

"fixes sinks" or "fixing toilets and sinks and things...a plumber" (Group Y-A), to "by fixing people's taps and things" and "by using a wrench and some kind of mechanic..." (Group Y-H) to "a plumber looks like" (Group O-A), to "a plumber or a carpenter" and "could be a plumber" and "maybe a plumber or mechanic" (Group O-H). A similar pattern to that of the plumber is evident in the responses for the model showing considerable contrast between responses such as "balletter" or "gymnastic thing" in Group Y-A, or "some kind of gymnast or ballet dancer" in Group Y-H, to "contemporary dancer," "classical dancer," "ballet dancer" and "model" in the responses of

Table 5.50

Summary of Stated Occupation and Clues: Picture of Teacher by Various Groups

Groups	
Y-A	Y-H
Inference	**Inference**
"teaching"	"teaching French"
"teaching"	"making pictures" *
"teaching French and showing pictures that children could say them in French"	"teaching French"
"teaching"	"teaching"
Clues	**Clues**
"don't see many big blackboards in a kitchen"	"French on the board"
"she's holding up pictures"	"showing pictures"
"names on the board"	"writing ... in French"
"pictures"	"some pictures on her kitchen counter"
"writing on the blackboard"	"French words on the blackboard"
"French"	"pictures with French under them"
"pictures"	"holding up pictures"
"holding up some pictures"	"writing on the blackboard"
"writing on the board"	
"sitting near the board"	

*Irrelevant responses

Table 5.50 (Continued)

Summary of Stated Occupation and Clues: Picture of Teacher by Various Groups

Groups	
O-A	O-H
Inference	**Inference**
"teaching about kindergarten, grade 1 or grade 2"	"teaching French"
"drawing" *	"teaching"
"teaching"	"teaching French"
"teaching French"	"teaching"
Clues	**Clues**
"French words on the black-board"	"writing on the board"
"using pictures"	writing is "French"
"holding up drawings"	"on the board something in French"
"French on the board"	"a blackboard behind her"
"in a classroom"	"holding up charts"
"standing in front of a black-board"	"French words on the board"
"got little pictures"	"words that are written at the bottom of the signs"
"some pictures"	"in the classroom"
"French words underneath"	"a blackboard"
	"writing on it"
	"holding up some pictures"
	"talking to some people"

* Irrelevant responses

Table 5.51

Summary of Stated Occupation and Clues: Picture of Plumber by Various Groups

Groups	
Y-A	Y-H
Inference	**Inference**
"plumbing"	"by fixing people's taps and things"
"fixing toilets and sinks and things ... a plumber"	"by using a wrench and some kind of mechanic... a person that would fix something"
"fixes sinks"	"mechanic"
"by working ... owns a farm... helps construction workers... might be an architect"	"a plumber"
Clues	**Clues**
"a lot of tools around"	"two wrenches"
"wearing old clothes"	"a wrench here"
"a lunch box"	"he has another thing"
"all the wrenches and stuff"	"a lunch box"
"the wrench"	"lots of tools"
"these overalls"	"pipe wrench"
"two big wrenches"	"a wrench ... I can't remember the big large one... it's orange"
	"a lunch box"

Table 5.51 (Cont'd)

Summary of Stated Occupation and Clues: Picture of Plumber by Various Groups

Groups	
O-A	O-H
Inference	Inference
"by plumbing"	"plumber or a carpenter"
"a plumber looks like"	"could be a plumber"
"a plumber and he fixes water in taps and everything like that"	"maybe a plumber or something to do with building buildings"
"a plumber"	"maybe a plumber or mechanic"
Clues	Clues
"work clothes"	"clothes he's wearing"
"plumber's wrench"	"a lunch box"
"work clothes, overalls"	"some tools lying there"
"wrench beside the couch"	"tools to fix like sinks"
"lunch box"	"wrench ... like to tighten pipes"
"two wrenches"	"his lunch box"
"the working box"	"the way his pants are"
"a monkey wrench"	"tools that he has beside him"
"a crescent wrench"	"monkey wrench"
"overalls"	"this here ordinary wrench"
	"those clothes"

Table 5.52

Summary of Stated Occupation and Clues: Picture of Model by Various Groups

Groups	
Y-A	Y-H
Inference	**Inference**
"by doing ballet"	"a singer"
"sings"	"dancing"
"a ballerina" or "could be a gymnastic thing"	"some kind of gymnast or ballet dancer"
"balletter"	"working in fashion shows"
Clues	**Clues**
"using slacks"	"and the hand"
"having to use stretch slacks and everywhere on her body is stretching"	"way she's sitting on the stool and holding the cup"
"can move her wrist all the way down"	"dancing clothes"
"looks like she'd be a singer"	"gymnast's suit on"
"gym suit"	"her fingers and her hands"
"has a suit that she uses for dancing"	"she's sort of graceful"
	"way she was dressed"

Table 5.52 (Continued)

Summary of Stated Occupation and Clues: Picture of Model by Various Groups

Groups	
O-A	O-H
Inference	Inference
"maybe a contemporary dancer or ballet teacher or student" "doing ballet" "like a ballet or a gym teacher" or "in a sport like polo" "doing ballet"	"a dancer" "a model" "a classical dancer or a ballet dancer ... or could be a model" "a model or a ballet dancer"
Clues	Clues
"clothes ...flexible for dancing" "the way she's dressed" "looks like she's practicing" "ballet suit and leotards" "sitting on a stool" "little sockettes on her feet or something" "very muscular" "leotards ...and a shirt" "hair short"	"leotards" "the way she's dressed" "the way she's posing" "looks like she's posing" "wearing the right uniform" "isn't wearing any shoes" "clothes she's wearing" "the position that she's sitting in"

the older groups. The variation in patterns of response between the teacher and the plumber and the model may reflect the greater complexity of the question for the plumber and the model.

With regard to the clues used in identifying the teacher, there appears to be little difference in number and variety in the four groups as shown in Table 5.50. However, the stated clues of the older groups tend to be more precise and to give more information about the clues.

The summary in Table 5.51, the clues used in identifying the plumber, shows a progressive increase from Group Y-A to Group O-H in total number of clues used by each group. The variety of clues, which is limited to the available clues, the wrenches, the clothes, and the lunch box, is similar for each group. However, the older groups' stated ideas are more explicit than the younger ones.

The available clues for the identification of the model were also limited. There is little difference in number of clues used by the four groups with the exception that Group Y-A mentioned fewer clues. The older groups seemed to be able to abstract a few clues which the younger ones did not observe such as "looks like she's practicing" and "sockettes" and "hair short" and "isn't wearing any shoes." The older groups were also more specific in stating the common clues as evidenced by such phrases as "having to use stretch slacks and everywhere on her body is stretching" and "has a suit that she uses for dancing" and "gym suit" in the Group Y-A responses; "dancing clothes" and "gymnast's suit" in the group Y-H responses;

and "clothes ...flexible for dancing" and "ballet suit" and "leotards" and "wearing the right uniform" employed by the older groups. A notable comment about the model by a Group Y-H subject was, "She's sort of graceful."

Two people in a given circumstance. The second question in question three, the injured player, was included to discover how the subjects in the various groups might express feelings from the point of view of others in a situation involving inference. In Table 5.53 is presented the responses of all of the subjects regarding the feelings of the injured player. All of the subjects, except #7, made an attempt to infer how the player might feel. The expressed ideas of how the person might feel consisted mainly of pain, discomfort, and disappointment that the sprained ankle would curtail the person's activities. In one response in Group O-A and in two responses in Group O-H, the subjects gave a reason for the stated feeling of the injured player. The inferred ideas about the feeling of the player were generally more developed in the responses of the older groups than in the younger ones.

A character, setting, and event in a given circumstance. The second part of the question in category four, the train and the flooded tracks, elicited from the individual subjects suggestions as to what might be done to stop the train if a red scarf were not available. The summary of the stated suggestions is presented in Table 5.54. An overview of the suggestions shows a greater

Table 5.53

Various Groups Expressing Feelings of Injured Player

Group Y-A

#1 "She probably feels not very well in her leg - like her leg must hurt near her ankle bone."

#2 "Feels kind of hurt. And he'd feel sad cause he won't be able to run for awhile. He has to stay off its sting for awhile."

#3 "I guess not too happy ... sort of glum."

#4 "Well, maybe not too happy. And mad that she has a sprained ankle or whatever happened to her."

Group Y-H

#5 "Painful in the ankle cause she twisted it ...."

#6 "Pretty bad." "It's pain. ... It's like pain. Probably doesn't feel well."

#7 "Well they don't feel very nice. ... I don't know really how they feel."

#8 "The person might feel sad. The person might feel pain in the foot."

Group O-A

#9 "Well he feels unpleasant because of the pain in his leg and uncomfortable."

#10 "It looks like he might hurt a little bit."

#11 "I don't think he feels too bad because the lady's in the picture is smiling at him." ... "She looks as if she's in very good shape and I don't think she hurt herself too badly."

#12 "Her foot is probably sore and it might have a bruise on it, but I don't think it would hurt that much that she would cry. And it'd probably be better in about a week or two weeks."

Table 5.53 (continued)

Group O-H

#13 "Kind of hard to tell. He might be angry because of the game... that maybe he has a game quite close or he might be sort of in pain...."

#14 "Well, I don't think she doesn't seem to be too worried but the way her head's sagging seems she might be tired."

#15 "Well you can't really feel the expression on her face but she's sort of leaned over so she doesn't really look ... well she looks kind of in pain the way she's all leant over the way her head is tilted."

#16 He would's feel too good because if he's fallen and he's hurten his ankle, then it would be sore."

Table 5.54

Summary of Suggestions for Stopping A Train Without Red Scarf, by Various Groups

Groups	
Y-A	Y-H
"wave his hand and yell stop"	"run over to the train station and maybe get help there"
"stand on the tracks and wave his arms"	"try and get the water back into the creek ... build a dam"
"try to stop it by yourself with your hands"	"wave my hand"
"start yelling ... and if that didn't stop him, I don't know what I'd do"	"run across the road .... and try to turn the switch way

Table 5.54 (Continued)

Summary of Suggestions for Stopping A Train Without Red Scarf, by Various Groups

Groups	
O-A	O-H
"tell someone at the station and they could tell them on the transceiver to stop the train .. or get something colorful and then tie it to a pole" "bright color clothing, he could use that ··· or use his voice, yell and scream" "run beside the engine and yell" "start waving his hands or get the engineer's attention somehow"	"try and find something else to wave" "yell ··· scream ··· do something to draw the person's attention ··· grab a branch" "shine a light if it was dark or make some kind of noise and motions" "take off your coat ·· or piece of clothing and wave it or ··· a stick or something ··· anything that was available that you could wave"

conceptualization of the urgency of the situation and of what could be done by the older groups than by the younger groups. The older groups also gave more information with regard to their suggestions.

The question in category four regarding what might have happened if a man were boarding up the window of a house yielded a number of alternative inferred reasons for the man's activity from most of the individual subjects. The total number of alternative reasons tended to be highest in the older high language users group and lowest in the younger average language users group. These are the ranges of total number of suggested alternatives within each group:

Group Y-A - 1 to 2
Group Y-H - 1 to 4
Group O-A - 1 to 3
Group O-H - 2 to 4

The stated alternative reasons for boarding up the window of the house by all of the subjects were paraphrased in note form and appear in a summary in Table 5.55. In addition to suggesting a greater number of alternative reasons, the Group O-H responses reflected greater conceptualization of thought and a greater repertoire of word meanings than the other groups, particularly the younger groups.

People, objects, and an event in a given time and place. The objective of the second and third query in question six, two men

Table 5.55

Summary of Reasons for Boarding Up A Window of A House by Subject and by Group

Groups	
Y-A	Y-H
subject #1 burglars tried to rob	subject #5 could be deserted dangerous house with lots of holes not a very good house cracked windows are dangerous for kids
subject #2 house couldn't be used anymore someone might have died or somebody might have moved	Subject #6 burglars boarding up window they broke
subject #3 could have fallen off ladder and window might have smashed on him	subject #7 glass broken and going away something traggic happened in house something inside
subject #4 might want to go away doesn't have any glass	subject #8 keep the wind out in case of a storm

Table 5.55 (Continued)

Summary of Reasons for Boarding Up A Window of a House
by Subject and by Group

Groups	
O-A	O-H
subject #9	subject #13
ball went through the window	might be condemned
rocks broke the window	foundation very poor
house might be condemned	infested with rats
	could have had a fire
Subject #10	frame of house not secure enough
house might have burned down	
subject #11	subject #14
fire	house might be broken into
	could have had a fire
getting old and about to be torn down	store's closing down
	tearing it down
subject #12	
window broken	subject #15
house may not be very good anymore	fire in the house
	too filthy for anyone to live in
	subject #16
	fire in the house
	going to be vacant for a long time

surrounded by cars, was to tap the subjects' facility in expressing feelings from the point of view of others in a circumstance evoking emotion and the expression of their own feelings regarding the same circumstance. In Table 5.56 are shown illustrations of the stated feelings of the two men surrounded by cars by the individual subjects. Table 5.57 provides illustrations of responses regarding the subjects' own feelings about the particular circumstance.

As shown in Table 5.56 and in Table 5.57 the responses regarding the feelings of the two men were generally much briefer than the expressions of the subjects' own feelings. Among the responses, in Table 5.56, most of the subjects used the words "angry" or "mad" to express the feelings of the two men. In a number of responses, the dilemna of the situation was implied but only two subjects in Group O-H spoke of the men's bewilderment and confusion about the situation.

There was a greater variation in the samples of the subjects' own feelings about the bewildering situation compared with the ideas of how the men felt. The responses of subjects #1, #7, #14, and #15 indicated that these subjects had captured the predicament of the situation. Subjects #5 and #15 seemed to identify with the various people affected by the predicament. There were indications of an attempt to avoid expressing their own feelings in the responses of subjects #3 and #9. However, number nine's response also reflected an attempt to express greater abstractness of thought.

Table 5.56

Illustrations of the Expressed Feelings of the Two Men In a Picture Surrounded by Cars by Various Groups

---

Group Y-A

Subject #2

"Sort of mad."

Subject #4

"Mad that everybody crowded them in."

Group Y-H

Subject #6

"Bad!"

Subject #8

"....but if they can't (get their cars), they'd feel worse."

Group O-A

Subject #10

"They feel like they'll never come here again. And it's too crowded all the time."

Subject #12

"They probably feel mad because they can't get their car out and they might have to be somewhere fast. And they're probably really angry and they wish that everybody would move their cars so they can go."

Table 5.56 (continued)

Group O-H

Subject #14

"Well, I think they feel quite worried - sort of bewildered because they probably thought that there wouldn't be very many cars. And...it sort of seems funny that they wouldn't be able to find their own car."

Subject #16

"Well, I'd say they'd be pretty angry and confused cause they wouldn't know how they'd get to their car and they may forget where it is cause all the cars parked in there."

Table 5.57

Illustrations of Subjects' Expressed Feelings About Picture: Two Men Surrounced by Cars

---

Group Y-A

Subject #1

"It makes me feel like I'm in a terrible mood...not in a terrible mood--I mean they must be cause it's so gigantic and there's so many cars and they're all facing in different directions.

Subject #3

"It could make me feel lots of things. ... Well, could sort or make me feel sort of sad ... in a way. It sort of makes me happy in a way."

Group Y-H

Subject #5

"Sad ... cause I don't want anybody to get hurt in that jam ... and I feel sorry for the children ... who were worried about their father and I feel sorry for all the people here who are waiting for to get home to do something."

Subject #7

"The picture makes me feel like I wouldn't want to be in it. I wouldn't want to be near the street or parking lot that it happened."

Group O-A

Subject #9

"Oh, not too really good cause ... you know you can see that your city and other parts of the world are being ... almost polluted."

Table 5.57 (continued)

Subject #11

"Not very good. It makes me feel sad. And ... I feel sorry for the people who are doing it."
(This subject's inferred idea about the picture was that robbers were trying a get-away.)

Group O-H

Subject #13

"In describing this picture it makes me feel like I just don't know anything about it because it's kind of a hard picture to answer a question like that. I sort of feel sympathetic for that person trying to get out because of you know there's so many cars around and there's no where to get out."

Subject #14

"Well when you first showed me it, it sort of gave me a temporary shock. I didn't know what was going on there because there was so many cars there. If I was in their position I'd probably feel just as worried."
(This example was added to show the use of the vocabulary "temporary shock" and "if I was in their position.")

Subject #15

"Well, if that was me in amongst all those cars, I think I'd go bananas ... looking for my car. It'd drive me crazy almost. Like I can't stand really like waiting around all the time. LIke I'm patient but I'm not that patient to wait for then thousand cars to move out."

A trend toward greater proficiency in the use of vocabulary and the inclusion of more information about the inferred feelings was again noted in the responses of the older groups, especially Group O-H, as compared with those of the younger groups in both Tables 5.56 and 5.57.

3. Summary

The analysis of the responses in the descriptive task "Inference" focused on the children's use of inference in the expression of relationships between various combinations of objects, people, and events in given circumstances. There were six description requirements, one for each of the questions in the task. The nature of the questions necessitated two levels of analysis.

The first level of analysis was concerned with performance regarding "Reasonable Inferences" and "Explicit Responses" in the various questions. The frequency distribution in the groups pointed to the conclusion that the performance of the average language users and the high language users in the two age groups tended to be similar in making reasonable inferences in the six questions but the older high language users showed greater facility in the explicit expression of the relationships. The results did not point to significant differences among the questions with regard to their level of complexity. The older groups appeared to be more advanced in the expression of relationships containing clauses than the younger ones as evidenced in the higher totals in number of these expressions of relationships containing clauses and in the nature of these responses.

The second level of analysis investigated the quality, and to some extent the quantity, of the performance in particular aspects of the questions: the stated clues for the inferred relationships in questions one and two; the identification of specific occupations in question two; the expression of feelings from the point of view of one's own reactions and from the point of view of others in situations evoking emotion in questions three and six; and the expression of alternative relationships in questions four and five. The dominant trend in the results in the second level analysis was that the older groups showed greater precision in the use of words and greater depth of word meaning, and provided more information about the inferred ideas than did the younger groups. With regard to the above factors, the performance of Group Y-A was almost consistently the lowest and that of Group O-H was frequently the highest. Most of the subjects attempted the expression of feelings, their own and from the point of view of others. Greater conceptualization of thought by the older subjects was evidenced in the greater variety of clues used in the identification of some relationships, the greater urgency conveyed in the responses related to the train and the flooded tracks, and in the alternative reasons for boarding up the window of a house. The identification of the teacher and the use of clues in this question was the only area in this analysis in which there was not a significant difference in the groups.

VII. SUMMARY

In this chapter, an analysis was done of the language samples of average language users and high language users in two age groups for the first five descriptive tasks of increasing complexity which represented the skills conceptualized to be involved in the description of objects and events: Criterial Properties, Selection of Essential Elements, Comparison and Contrast, Sequencing, and Inference.

The organization of the analysis and the discussion of the findings of the individual tasks varied according to the description requirements for each task which were established in the construction of the research instrument. The requirements formed the categories for analysis of most tasks. These were the major categories in the analysis of the individual tasks:

Criterial Properties

1. Categories of Meaning
2. Part-Whole Relations
3. Qualitative Levels Within Categories of Meaning.

Selection of Essential Elements

1. Description Achieved
2. Essential Elements
3. Qualitative Levels In Speech Behavior

Comparison and Contrast

1. Organization for the Task
2. Quantity and Quality of the Abstracted Features
    - Quantity of abstracted features
    - Quality of abstracted features
3. Expression of the Relationships Among the Abstracted Features.
    - Listed abstracted features
    - Reduced comparisons
    - Statements of comparison
    - Relational terms and comparative words

Sequencing

1. Arrangement of a Logical Sequence of Actions
2. Sequential Relationships in Preceding and Subsequent Stages.

Inference

1. First Level Analysis

    Use of inference in expression of relationships between:

    - objects in a given circumstance
    - an individual in a given circumstance
    - two people in a given circumstance
    - a character, setting, and event in a given circumstance
    - people, objects, and an event in a given time and place
2. Second Level Analysis
    - quantity and quality of specific responses elicited by particular questions.

The criteria for analysis of the various categories were determined by the task requirements of the individual skills and by the specific information in the responses. The analysis focused mainly on trends in frequency distribution, qualitative patterns, and the nature of the speech behavior. The data were examined mainly for trends and patterns in the four groups, the two age groups, and in the average language and high language groups within an age group. Patterns were noted in the performance of individuals whenever the findings pointed in that direction.

The categories and criteria established were validated with reference to two experts. The validated categories and criteria were then judged for all responses by a second judge and any disagreements resolved.

In the findings, the trends and patterns in frequency distributions pointed to growth in the concrete-abstract dimension; the qualitative levels related to either the concrete-abstract or the implicit-explicit dimensions, or both; and the examination of the speech behavior identified growth patterns in the implicit-explicit dimension. Each descriptive task yielded specific information which was either obscure or absent in the others. Detailed summaries of the findings in each descriptive task are provided at the end of each section, sections two to six.

CHAPTER VI

ANALYSIS OF DESCRIPTION AND STORY TELLING

In this chapter is presented the analysis of the final two descriptive tasks of the research instrument , "Description" and "Story Telling," the functional language situations. The chapter consists of four sections. The categories and criteria used in the analysis of "Description" and "Story Telling" are discussed in section one. Case studies of two subjects are presented in sections two and three. The discussion in section four is a synthesis and summary of the two case studies.

A detailed analysis of the language samples of the sixteen subjects was not done for the final two descriptive tasks. The samples of two children's language behavior in "Description" and "Story Telling" were subjected to analysis in the form of case studies. In each of the two case studies, the findings of the analysis of the description and the story were related to the child's performance in the first five descriptive tasks with regard to the information revealed about the child's oral language power.

The criteria for selection of the two children for the case studies were: one subject from each of the two extreme groups, the younger average language group and the older high language group, and one subject whose descriptions and stories appeared to be fluent, but lacking in control, and the other showing considerable control. Subject #1 and subject #14 were selected for the case studies. The description and stories of subject #1, who represented the younger average language group, were relatively fluent but notably lacking in control, whereas those of subject #14 showed the greatest control of the older high language users. For the purpose of the present case studies, subject #1 was given the fictitious name Earl and subject #14 was named Rod.

I. DESCRIPTION AND STORY TELLING

Description is a language strategy which is important in almost all situations (McFetridge, 1973a). The objective in including "Description" and "Story Telling" in the research instrument was to discover the subject's strategy in description in the functional communication situations of describing an event and telling a story. The subject was instructed to choose and to describe one of three pictures evoking emotion which included people, objects, and an event in a given time and place. The pictures were of a fireman fighting a blaze; policemen forming a barricade for a crowd of people; and a young girl, surrounded by children, playing an autoharp outdoors. The same three pictures were used for "Story Telling." The directions were to choose and tell a story about one of the pictures.

The description requirements formed the categories for analysis. The categories in "Description" were number of relevant ideas, organization of the description, and expression of relationships. Snortum (1967) has said that to describe, the thinker-writer (speaker) must want the listener to see something as he sees it and misuse of detail can have a crippling effect on a description. In the analysis within the categories the question to be asked was, Did the description represent what was perceived by the observer? Any additional information which did not serve the purpose of the image in the picture was rated as irrelevant ideas.

Story Telling is essentially narrative, the recounting of events, actual or imaginary (Snortum, 1967, p. 145). According to Snortum, dramatization of a theme distinguishes fiction from nonfiction. Dramatization requires the teller of the story to enter imaginatively into the subject of the narration. In "Story Telling" the categories for analysis were: title, plot, organization of the story, and expression of relationships. The basic criteria for the categories in the stories were as follows:

a. Did the title reflect the main idea of the story?

b. Was there an imaginary element in the plot and was the plot clear?

c. Did the organization of the story consist of an introductory sentence, sequential arrangement of ideas, and a concluding sentence?

d. How many expressions of relationships contained clauses?

These were the descriptions and stories of the two subjects selected for the case studies:

Earl

Description:

> A car probably had an accident. Maybe a truck.
> It must be a car or truck cause I can see the doors.

And the firemen are there cause the gasoline tanks are leaking and it got smoky and it just blew up - probably into flames. And now the firemen are trying to put it out cause it's probably near a building. You can see a window right there. And.. there's just some terrible flames. And it could even blow up again. That's why it's so dangerous to be a fireman.

Story:

THE BLOWN UP TRUCK

Once there was this drunkem man driving and he was in..... And he like all Indians* in .... were all drunken. And, well not all but most cause they're always after booze and they're all poor. And these men was probably stole a truck and probably smashed into something or someone...not probably something. And.....the thing must have gone to pieces. The gas tank started leaking. The man probably was very badly injured. And the gas tank was leaking and fire started the - I mean the ..some gas started coming out of the engine of the wheel. And the wheels the person slammed on his brakes and the wheels burnt. All of a sudden just as he got out it just blew up into pieces. And there were flames everywhere. And the firemen were there. And ....I was across the street. And it was really fun just watching it. And it was really exciting.

(*The reference to Indians was considered not to be discriminatory on the part of the subject but to reflect the young child's egocentricism, his narrow perception of the wider world.)

Rod

Description:

In this picture a...fireman with a black hat and a black coat is holding a hose it seems and aiming it at the fire which is just in front of him. And sparks are flying in front of his face. And.... the background it seems to me-an iron door behind him and a window of a house. And....the fireman's also sort of got his mouth open. And it seems to me that it may be a little bit cold on that day.

Story:

JAN'S MUSIC PLAYING

> Jan was growing up. She was about 18. And she loved to play...instruments. And she loved....this instrument that it's sort of like a mandolin in a way. And its got strings and when you play different strings, it makes different sounds - higher and lower. And she wanted to play it for all kinds of kids. And so one day she went out and sat on a chair, and started playing different songs. And all the children came around and .....listened to her. And they started laughing. And one girl was so happy and excited she started patting her. And the player seemed very happy too.

II. CASE STUDY NUMBER ONE

Earl was a spontaneous boy, age nine years two months in grade three, of average ability according to group I.Q. scores. He was rated by the classroom teacher to be an average language user. He was enthusiastic about the various questions which were presented to him. However, it was noted in both interviews that he had difficulty focusing on the requirements of some of the questions and frequently instructions had to be repeated.

1. Analysis of Performance in Description and Story Telling

Earl's description appeared not to meet the criteria of the first two categories in the description of the picture. His ideas were relevant in that he identified the central idea of the picture and the basic detail, the fireman and the flames. The attempt to infer the obscure details, the window and the car door, seemed reasonable. However, the inferences as to what might have happened, what could have happened, and the clinching statement, "That's why it's so dangerous to be a fireman," had a distracting effect with regard to what was given in the picture and the logical organization of the description. For the most part, use of words and sentences was relatively precise. There was a hint of implicitness of shared content assumed in the sentence, "You can see a window right there." His description contained four sentences expressing causal relations. In one such sentence, he did not succeed in stating the relations clearly: "And the firemen are there cause the gasoline tanks are leaking and it got smoky and it just blew up, probably into flames."

The title of Earl's story "The Blown Truck" set the stage for the main idea of the story. The theme seemed to be based on actual fact but contained an element of imagination. His introduction, "Once there was this drunken man driving and he was in ....," and the ending, "And it was really exciting," were indicative of an understanding of these requirements in story telling. The plot tended to be unstable due to the elaboration on people's problems and failure to achieve a logical sequence throughout. The following confusion in sequence and in use of words were especially difficult to comprehend, "And the gas tank was leaking and fire started. I mean some gas started coming out of the engine of the wheel." Otherwise the story did not reveal any marked difficulty in use of words. The sentences were mainly simple or compound. The story contained two statements expressing relationships.

What did these two functional language tasks reveal regarding Earl's language power? He had limited success in the functional use of language. His strengths appeared to be in conveying an element of interest, achieving fluency to some degree, identifying the whole, noting the limited detail in the picture, and an understanding of some of the requirements in story telling but he had difficulties in focusing on the requirements of a description, especially in the use of inference, and in the logical development of the plot of his story. Facility with words in sentences was unstable at times. There were few indications in these language samples regarding development of the basic skills involved in description, and his scope in the observation of attributes in comparison and contrast, and in sequential and inferential thinking. The information in these language samples was insufficient to determine the factors which inhibited Earl's strategy in description and story telling, the functional language situations. It is noted that the demands of the oral response gave Earl little time to plan his strategy.

2. Performance in the First Five Descriptive Tasks

A review of Earl's responses in the five descriptive tasks pointed to strengths on which to build in instruction, to specific inhibiting factors in oral language production, and to qualitative levels of response.

Strengths on which to build. Earl's quantity of language production appeared to be in line with his age group, and well above it in several instances, in the identification of categories of meaning, specification of the parts of the stimuli, abstraction of common features for comparison, identification and sequencing of actions to be taken in the case of a friend with a broken leg. His ideas were reasonable with regard to the requirements of the questions. In the first task, his identified categories of meaning were similar to the categories of meaning common to all four groups. Additional categories of meaning were texture, composition, and weight of the button; composition of the dog, and actions of the dog and horse.

Inhibiting factors in language production. Earl's difficulties in his language production pointed to an instability in operating with his ideas in the following ways:

1. He did not meet the criteria for selection of the significant elements for "Notice: Cap Found" and "Ad: Dog Lost" because he failed to focus on the language job, to organize for the job, to select the specific from the general, and to infer that in order for the losers of the lost items to regain possession of them, there would have to be some indication of where the item was found or where it was lost, and whom to contact.
2. His organization of responses in the comparison tasks consisted of predominantly D/S sequences (differences noted first and then similarities) which suggested considerable dependence on specification of differences in his categorizing behavior.
3. In comparison, although he produced numerous comparative statements for the common abstracted features, he merely listed some

features in questions two to six. He tended to list isolated features almost exclusively in the multiple comparison question.

4. His comparison of a birthday and an anniversary was based on a concrete example: "A birthday is when like suppose I met a little boy who was seven and he was just turning eight today that would be a birthday..."
5. He achieved the chronological arrangement of sequential actions but was not successful in speaking of the sequential relationships in preceding and subsequent stages reflecting developmental problems with temporal relationships.
6. His expression of meaning was notably lacking in focus and explicitness whenever inference requirements were specific. For example, the plumber was identified in this way: "He probably earns a living by working. And he probably owns a farm. He probably helps construction workers and helps make buildings. Might be an architect with a construction building." His identification of the model was reasonable but he rambled on for three or four sentences on what is required in becoming a ballet dancer. His stated clues used in identifying the ballet dancer were, "Well she's using slacks. And they have stretch slacks. And all --- every where on her body is stretching. You can see that she can move her wrist all the way down....."

Quality of response. In the analysis of qualitative levels of words, Earl's speech behavior tended to rate in the implicit range. He was stronger in using language structure to express relationships

than in the use of words as illustrated in these statements:
"It's got elastic rim around the back so it'll probably fit everyone." (Part-Whole relations)
"And the front is made of cardboard." (Part-Whole relations)
"I'd say the jar would be heavier than the bell because there's more things in it and they make it more heavier." (Comparison)
"Probably carries lots more things except this would carry cargo; this would carry people." (Comparison)
"If my friend broke my leg, I'd probably see if it hurt anywhere." (Tentative)
"And then I'd quickly run to the nearest house to me and might ask if I can borrow their telephone." (Sequencing)

The observation regarding Earl's limitations in use of words was supported in the analysis of the categories of meaning in the first descriptive task in which his responses were rated mainly implicit - some were implicit-explicit.

3. Summary

The five descriptive tasks served to provide a much more comprehensive evaluation of Earl's language power than did "Description" and "Story Telling." They pointed to strengths in the cognitive processes and language production, and to specific inhibiting factors. The latter were noted to be related to concreteness in functioning in several areas of the basic cognitive skills and a tendency toward implicitness in word meaning. It is posited that these inhibiting factors in functional use of language are partly due to being nine years old. Jackson & McFetridge (1972) in reference to children's apparent weaknesses reflecting their age suggest that because of their age children lack sufficient experience, both real experience and experience made significant through language, to make explicit the meaning they intend to share (p. 2). In Piaget & Inhelder's (1969) system of decentering, Earl is more or less midway in the long transition period, from age two to twelve, from subjective centering in all areas to decentering cognitively and socially (p. 128). According to Ausubel (1963), Earl's lack of explicitness and precision is related to the unsystematic, nonanalytic approach characteristic of the elementary school child's cognitive functioning, the paucity of higher-order concepts and transactional terms (p. 122). Smith et al (1970) suggest that along with neurological development children will move from one stage of complexity to the next depending on richness of experiential background and quality of dialogue with adults (p. 116). It might then be postulated that Earl's instructional needs in the area of language would be the provision of experiences which allow for expansion of his strengths and a build-up of the areas of weakness in the basic cognitive skills and word meaning.

III. CASE STUDY NUMBER TWO

Rod was age twelve years two months in grade 6, above average intelligence according to group I.Q. scores, and a high language user as rated by the classroom teacher. He was poised, reserved, and rather nonchalant in the interviews but always co-operative appearing to try his best in the tasks which were presented. Whenever he was not sure of the instructions, he made a point of establishing what was required before giving a response. His stated opinion regarding the tasks was, "Well, I thought at first I didn't know what to do... They were exciting and fun..... It made me think all the time."

1. Analysis of Performance in Description and Story Telling

Rod chose to describe the picture of the fire and met the criteria established for the task. Each sentence reflected an attempt to tell exactly what was given, the obvious and the obscure, the fireman, the black hat and black coat, the hose, and the sparks, and the possibility of the iron door and the window in the background. He attempted only one inference as compared to Earl's numerous inferences: "And it seems to me that it may be a little bit cold on that day." This inference, too, conveyed the possibility of the observation of an apparent clue in the picture. The description for the most part was logically developed. One statement seemed to be somewhat out of sequence; "And the fireman's also sort of got his mouth open." Two sentences expressing relationships contained clauses. The description of what was perceived was explicit through the use of specific labels and sufficient information about an idea. The only sentence which was rather tenuous was, "And the background it seems to me - an iron door behind him and a window of a house."

Rod's story also met the criteria in most instances for "Story Telling": the title which gave the main idea, a clear plot, an introductory sentence, a sequential order of the ideas, and a concluding sentence. The introductory sentence in itself did not give direction to the plot of the story, but Rod managed to synthesize the development of his ideas in such a way that in the final analysis the sentence, "Jan was growing up." served to add to the effectiveness of the story. Only two sentences contained clauses. The failure to state one of these sentences succinctly was possibly related to Rod's difficulty in identifying the instrument. The use of words in sentences was generally explicit. However, the imaginary element of the plot was weak in Rod's story possibly due in part to the limitations of an oral presentation of a story which did not allow for pre-planning of a strategy and to the limitations of the stimulus.

The economic use of language in Rod's description and story may have reflected the above factors to some degree. However, the analysis of his performance in these functional tasks revealed them to be compact and to carry considerable information, indicative of a relatively high degree of language power (Smith et al, 1970, p. 172). In the final analysis, both samples of language provided limited information about the scope of Rod's abstractness of thought and the scope of his language competence.

2. Performance in the First Five Descriptive Tasks

Rod's responses in the first five descriptive tasks were characteristic of an economical use of language as noted in his description and story of the pictures. His totals for a number of categories of meaning in the first task and for number of abstracted features in the comparison task tended to be below the mean scores of his group. These depressed numbers were seen to be influenced by the simple task requirements since the abstraction of common features in the more complex comparison questions were appreciably greater. The notably greater number of ideas in the more complex questions suggested that questions requiring greater conceptualization elicited more ideas from Rod.

In this case study, the different approach to the analysis of Rod's performance in the first five descriptive tasks to that of Earl's was determined by the nature of Rod's responses. Rod's performance in the first five descriptive tasks is reviewed in the light of levels of abstractness and levels of explicitness in oral language production.

Levels of abstractness. Evidence of growth in abstractness and continuing immaturities in Rod's cognitive functioning were noted in these results:

1. Immaturities were manifested in Rod's apparent difficulties in the descriptive task "Selection of Essential Elements" in which he did not meet the criteria of the task requirements in one

question and rated "almost" successful in the other response. The inhibiting factors for Rod were failure to sustain organization through the task, to discriminate the specific from the general, and to infer the need to state where the items were lost and whom to contact in order to gain possession of them.

2. A growing ability in the use of similarities as opposed to complete reliance on discriminating differences in categorizing was noted in the way Rod interspersed the identification of differences and similarities of the abstracted common features in the first four comparison questions.
3. Rod demonstrated abstractness in thinking in the identification of a number of abstracted features rated conceptual in each of the last three comparison questions.
4. A relatively abstract level of functioning was revealed in his successful comparison of three abstracted common features in one comparative statement.
5. The presence of abstractness in thinking was also evident in his clearly stated definitions in the comparison of a birthday and an anniversary: "And they're different because you celebrate different things for a birthday is when you're born and an anniversary is when you're married."
6. His successful expression of sequential relationships involving preceding and subsequent stages was indicative of approaching mastery of temporal relations.

7. In the descriptive task "Inference," Rod's number of "reasonable inference" were in line with those of his group but there were indications of a notable instability in this area in a number of responses.

Levels of explicitness. Rod's responses for simple ideas tended to cluster in the range of explicitness in the qualitative analysis of his speech behavior. Apparent difficulties in language structure occurred in expressions of conceptualization of thought or in attempts to employ complex structures.

In the qualitative analysis of the categories of meaning in the first descriptive task, the majority of Rod's responses were rated "explicit." For example, for the button he said "buttoning up coats" and "has a hook for the thread to go through and hook onto the coat." The description of the cap included: "There's a rim that comes out to form shade." and "It has different holes....to make air come through so you won't get all sweaty." Compactness in speech behavior was noted in this statement, "A horse can be different shades of colors - black, brown, white and spotted." The above examples also show his facility in expression of part-whole relations.

The high incidence of use of comparative statements employing either comparative words or relational terms in the comparison tasks was indicative of Rod's language growth in explicitness. However, his structural difficulties interfered with precision in communicating his ideas. The following are some examples of the way Rod employed comparative words and relational terms:

> "Flour and jelly beans are the same in the manner they both can be used for cooking - jelly beans for decoration and cooking."
>
> "And the refrigerator service truck has a box sort of carrying thing that'd be at the back attached and the bus in one whole sort of one whole object."
>
> "They are both edible."
>
> "They are used for different purposes."
>
> "They (birthday and anniversary) celebrate a certain thing."
>
> "They (ants) would probably see the different shapes and probably notice that one would be more slippery than the other."

Rod's successful and unsuccessful attempts to express a relatively high degree of abstractness of thought were also prevalent in both the sequencing and the inference tasks:

> "If my friend had a broken leg, I'd most likely go to the nearest telephone and phone the ambulance or the hospital and tell them to come to the right place."
>
> "He went looking around and then he saw it and gripped the bulb in his left hand and went to reach the brown pot with his right hand.
>
> "And then he waited weeks and it finally grew up."
>
> "Then he asked his mom if she had any fertilizer or anything. Then he's put it and laid it on if she had any."
>
> "And I got the clues from his lunch box, the way his pants

are, and tools that he has beside him."

"And I got the clues by the way she's dressed the way she's posing."

"Well, I think they feel quite worried, sort of bewildered because they probably thought that there wouldn't be very many cars."

"When you first showed me it, it sort of gave me sort of a temporary shock."

Rod's speech behavior, then, in the five descriptive tasks provided ample evidence of relative growing stability in depth of word meaning and growing ability in use of complex structures in expressing his ideas, and also pointed strongly to continuing immaturities in those areas characteristic of the development of a twelve year old (Piaget & Inhelder, 1969; Vygotsky, 1962; Ausubel, 1963).

3. Summary

The responses which "Description" and "Story Telling" elicited from Rod did not reveal the strengths and immaturities evidenced in Rod's responses in the first five descriptive tasks. As to Rod's instructional needs, the notable observations in the five descriptive tasks were Rod's relatively high levels of abstractness, depth of word meaning, and use of complex structures and the apparent immaturities in specific aspects of these areas, particularly in the use of complex structures.

IV. SUMMARY

This chapter was concerned with the information the last two descriptive tasks, "Description" and "Story Telling," yielded in relation to that of the first five descriptive tasks regarding children's language power. The language samples in "Description" and "Story Telling" of two of the sixteen subjects were analyzed in the form of case studies.

A subject was selected from Group Y-A whose description and story showed relative fluency but lack of control. The other subject was selected from Group O-H whose description and story showed the greatest control within his group. The first subject was given the fictitious name Earl; the other subject was named Rod.

An analysis was done of the boys' descriptions and stories according to the description requirements for each task. These findings were related to the boys' performance in the five descriptive tasks relative to growth in language power. In the analyses of the description and the story, Earl's performance tended not to meet the description requirements, but there was not sufficient information to point to specific underlying immaturities. Rod's description and story showed a relatively high level of language power. However, the scope of his abstractness of thought and language competencies were unknown.

The review of the boys' performance in the five descriptive tasks served to provide a much more comprehensive picture of their oral language facility. It pointed to Earl's strengths and apparent difficulties in operating with ideas related to concreteness in functioning in a number of areas of skill development and to a tendency to border on implicitness in use of words indicative in part of his age. Rod's responses in the first five descriptive tasks showed considerable abstractness of thought, depth of word meaning, and use of complex structures on one hand; and on the other, immaturities in specific aspects of these areas characteristic of development at the twelve year old level.

It was thus concluded that the combination of information yielded by the last two descriptive tasks and the first five descriptive tasks, in the cases of Earl and Rod, could be effective in formulating hypotheses for teaching, the former instrumental for screening purposes regarding the strategy of description in functional situations and the latter for assessing scope of strengths and immaturities in concreteness-abstractness of thought and in implicitness-explicitness in language competence. Both the five tasks involving the skills employed in description and the two functional task, then, did indeed serve to point to specific areas of growth in language power.

CHAPTER VII

SUMMARY, CONCLUSIONS, IMPLICATIONS, SUGGESTIONS FOR FURTHER RESEARCH

I. SUMMARY

Language power is the integration of two major areas of the child's development, his thinking power and his language competence in the communication of his thoughts and feelings to others. The present study was designed to explore the feasibility of looking at children's oral language behavior in description as a means of gaining a better understanding of their language power.

The stimulus for the study was the need in elementary education for a comprehensive measure for assessing individual children's instructional needs in language. It was postulated that a research instrument based on description could provide such a measure for these reasons:

1. The strategy of description is functional in all language situations.
2. The strategy of description involves the two dimensions of growth in language power, the spectrum of the basic cognitive functions and language skills.
3. The strategy of description can be subdivided into a variety of tasks in order to obtain samples of children's language behavior in several diverse situations.

A conceptual framework, "A Model of the Strategy of Description", representing the skills involved in description and their relationship to growth along the concrete-abstract continuum in cognition and along the implicit-explicit continuum in language development, formed the basis for the construction of the research instrument. The model was based on an analysis of what is involved in description and on a review of the literature related to child development as it pertains to language power.

The research instrument, Description: A Measure of Children's Language Power, was constructed to elicit oral language samples from individual children in seven different language situations related to description. The first five descriptive tasks were the skills conceptualized to be employed in the description of objects and events and the final two tasks to measure children's strategy in functional language situations. These were the descriptive tasks arranged in order of complexity: Criterial Properties; Selection of Essential Elements; Comparison and Contrast; Sequencing; Inference; Description; and Story Telling.

The instrument was administered to sixteen boys and girls in two age groups, ages eight years six months to nine years five months and eleven years six months to twelve years five months. Each age group consisted of equal numbers of average language users and high language users. There were four groups in all.

Specific categories were established for the analysis of each descriptive task and criteria were set up for the analysis of the various categories. In the first five descriptive tasks, the analysis of the language samples focussed on trends and patterns in frequency distributions, qualitative levels, and the nature of the speech behavior with regard to the four groups, the two age groups, and the average language users and the high language users within an age group. Two children's language samples in "Description" and "Story Telling" were analyzed in the form of case studies in the light of their performance in the first five descriptive tasks relative to the scope of their language power.

In the findings, the trends and patterns in the frequency distributions pointed to growth in the concrete-abstract dimension; the qualitative levels related to either the concrete-abstract dimension or the implicit-explicit dimension, or both; and the examination of the speech behavior identified growth patterns in the implicit-explicit dimension. The review of two children's performance in the five descriptive tasks in relation to an analysis of their strategy in functional language situations provided a relatively comprehensive picture of their oral language power.

The reader is reminded that the findings must be interpreted in the light of the exploratory nature of study. The findings for the four groups may have been influenced by the small number and the individual characteristics of the sample.

II. FINDINGS AND CONCLUSIONS

Several noteworthy findings and conclusions within the limitations of this exploratory study can be drawn from the results.

They are discussed from the point of view of the three research questions, specifically the information yielded by the children's responses to the descriptive tasks of increasing complexity regarding growth along the concrete-abstract continuum; growth along the implicit-explicit continuum; and the scope of children's language power.

Each of the seven descriptive tasks revealed something of importance, which was either obscure or absent in the others, about children's language growth. The features conceptualized to be unique to the various descriptive tasks, as depicted in the description requirements in Table 3.1, were substantiated by the findings.

The descriptive task, "Comparison and Contrast" produced the most information of all the tasks about children's language growth. The results pointed to children's development in the identification of the quantity and quality of criterial properties and categories of meaning in objects and events; the sequence employed in the specification of differences and similarities in comparing stimuli; and the repertoire of words and the use of words in sentences. It is noted that the complexity of the task requirements in the identification of criterial properties differed between the first task, "Criterial Properties", and the comparison task in that the first task involved identifying criterial properties in a single stimulus and the latter required the abstraction of common properties in two or more stimuli. The language samples elicited by each question in the comparison task tended to be greater in volume than those in the other tasks thereby providing considerably more information about the words available to the children and their use of words in sentences. However, samples of language structure pertaining to the expression of relationships were limited to comparative statements.

The results of the analysis of the children's responses in the various categories pointed to the possibility that significant information about children's growth in the concrete-abstract dimension and the implicit-explicit dimension might be identified by the five descriptive tasks.

The Concrete-Abstract Dimension

Each of the five descriptive tasks revealed something of importance about children's growth in language along the concrete-abstract continuum.

In the first descriptive task, "Criterial Properties", the results focussed mainly on the identification of criterial properties and the categories of meaning represented by the identified properties. The results suggested that the number of categories of meaning identified by children is a function of age and facility with language. That is, the older groups identified a greater number of categories of meaning than did the younger groups and the high language users identified a greater number than the average language users in the same age group. The most frequently identified categories of meaning tended to be similar for all groups. The most frequently identified categories were color, size, use, part-whole relations, and class names. Whenever stimuli contained many parts, there was a tendency by all groups to focus on the parts and to ignore some other categories. This identification of many component parts necessitated a separate analysis of the category of meaning, part-whole relations. The younger average language users did not attend to as many and to as great a variety of the component parts of stimuli as did the other groups, particularly in the dog and the horse. The abstractness of the verbal stimulus, the horse, appeared to stimulate the identification of a greater number of categories of meaning by the older groups and younger high language users. The tendency of young children to ignore the central idea of a picture, noted by Vernon (1962), was apparent in some of the descriptions of the picture of the dog by the younger groups and the older average language users in which as much, or more, attention was given to the background of the picture as to the dog. Factors influencing identification of the categories of meaning were found to be component parts of a stimulus, the abstractness of a stimulus, age, and language facility.

All groups encountered difficulties in capturing the essence of the task, "Selection of Essential Elements", which indicated the ability to select significant elements of a stimulus and to relate them to a functional situation is developing at the elementary school level and remains unstable even at the eleven and twelve year old level. The older high language users showed a little more control in the task than did the other groups. The major problems for all the groups were sustaining organization throughout the task, discriminating the specific from the general, and inferential thinking. Greater difficulty in composing the newspaper ad for the lost dog than the notice for the cap found encountered by all groups was possibly related to experential factors. The children's difficulties in both tasks also may have been exaggerated by the lack of opportunity in an oral language situation to check, condense, and reorganize their ideas.

The concern of the "Comparison and Contrast" task was to discover children's performance in comparing stimuli with regard to their organizational patterns, that is whether differences or similarities were identified first; the quantity and quality of the abstracted criterial properties; and the way they related the abstracted properties. Theories in child development indicate that ability to specify differences develops before ability to specify similarities (Church, 1961). In this study, the way in which the children specified differences and similarities appeared to be influenced by age, language facility, and the complexity of the questions. In the relatively simple questions, some children in all groups interspersed the specification of differences and similarities which pointed to a developing ability to note similarities even at age eight. The number of specified similarities in these simple questions increased progressively from the younger average language users to the older high language users. As the questions increased in complexity all the groups tended to rely to a greater degree on the specification of differences. The latter results were in keeping with Ausubel's (1963) position who believes that when relational propositions are complex, the elementary school child may have to fall back on subverbal concrete or intuitive functioning.

The number of abstracted common properties in comparing stimuli only appeared to be a function of age when the stimuli involved a relatively high level of abstractness, such as the abstract concepts of birthday and anniversary, or when the requirement was to compare stimuli from the point of view of others. The number of comparisons attempted by all individuals varied according to the complexity of the questions. The comparisons were more numerous for stimuli with numerous component parts and minimal for stimuli involving abstract concepts or in comparing stimuli from the point of view of others.

Numerous categories of meaning represented the abstracted properties. However, only a few of the identified categories of meaning were common to all groups, similar to the ones identified in the first descriptive task. Use and function were among the most frequently identified categories reflecting the functionalism of the nine year old as suggested by Olver & Hornsby (1966) and indicating that functionalism is still prevalent at ages eleven and twelve. The conceptual responses seemed to be influenced by questions involving verbal stimuli, abstract concepts, and point of view of others. That is, the percentage of conceptual responses increased as the complexity of the questions increased. Some children in all groups produced some conceptual responses but the high language users showed greater conceptual behavior than the other groups in most of the questions.

In the analysis which attempted to discover how children relate the abstracted common properties, the results suggested this function to be related to age and language facility. The older high language users consistently showed the greatest proficiency of all the groups.

Some children in all of the groups successfully handled the comparison of three stimuli in one statement; attempted to compare the abstract concepts, birthday and anniversary, by definition; and successfully compared two stimuli from the point of view of others. However, the older high language users showed greater control in their responses than did the other groups.

The task involving a chronological sequence of actions tended to yield a pattern in which the younger groups were more successful in sequencing than were the older groups. It was concluded that the possibility of greater abstractness of thought of the older groups accounted for their apparent difficulties. In the sequential task concerned with the expression of temporal relations of preceding and subsequent stages, which was difficult for all of the groups, more of the older high language users were successful in meeting the requirements of the task and showed greater control in their responses than did the children in the other groups.

The performance of both age groups in the "Inference" task suggested that making general inferences was not any more difficult for the younger groups than for the older groups. However, the older groups tended to produce a greater number and variety of clues for the stated inferences and a greater number of alternative inferences for specific situations than did the younger groups. With regard to the latter, the older high language users seemed to be the most proficient and the younger average language users the least proficient of the four groups in meeting the requirements of the task.

The Implicit-Explicit Dimension

The results in each of the five descriptive tasks pointed to important developmental factors related to children's growth in language along the implicit-explicit continuum.

A dominant pattern in the five descriptive tasks revealed the language production of the older groups, especially the high language users, to show greater explicitness of speech than that of the younger groups due to the availability of a greater repertoire of words and greater depth of word meaning; the inclusion of more information about a thought in phrases and in sentences; the compression of ideas into succinct forms; and a developing control and flexibility in the use of words in sentences.

In identifying criterial properties in stimuli, some of the responses of most of the children were implicit and some were explicit, and some tended to range between implicitness and explicitness. However, the responses of the younger groups tended to cluster in the implicit range and the responses of the older groups tended to cluster in the explicit range. The level of abstractness of thought at times was noted to inhibit explicitness in meaning in the older children's responses. That is, they attempted to speak about relatively complex properties at times and had difficulty in expressing their ideas succinctly.

Maturity and language facility were factors in effective use of comparative statements in comparing stimuli. The older groups produced a greater number of statements of comparison than the younger groups and the high language users a greater number than the average language users in the same age group. On the average there were few listed isolated properties and reduced comaprisons. The fewest listed isolated features appeared in the older high language users' responses and the most in the responses of the younger groups. A greater number of comparative words were employed than were relational terms in the comparative statements. The older high language users were more proficient in the use of relational terms and comparative words than were any of the other groups.

The patterns which emerged in the expression of sequential relationships and inferential relationships varied from the younger to the older groups. The greatest number of sequential relational terms occurred in the expressions of temporal sequences by the older high language users and the arrangement of logical sequences by the younger average language users. The older high language users achieved a greater number of explicit responses of all groups in the expression of relationships using inferences. In the use of inference in the expression of relationships, the older groups employed more clauses than did the younger groups. The kinds of relational terms employed by all of the groups tended not to be extensive. The stated inferred feelings were handled with greater competency by the older high language users than any of the other groups. All of the groups evidenced a greater number of inconsistencies in use of pronouns and verb tenses in conditional sentences than in sentences consisting of present and past tenses.

Language Power as Revealed by the Descriptive Tasks

The case studies in which two children's language samples in "Description" and "Story Telling" were analyzed in the light of their performance in the first five descriptive tasks served to reveal the potential of the seven descriptive tasks in facilitating an understanding of the scope of children's oral language power. There was considerable evidence that the first five descriptive tasks could be instrumental in identifying precisely children's levels of growth, their strengths and immaturities, along the concrete-abstract and implicit-explicit continuua. The last two descriptive tasks revealed significant aspects of the strategies employed by children in functional language situations. Thus it appears that a combination of the information yielded by the seven descriptive tasks could be effective in assessing individual children's instructional needs.

According to this exploratory study, then, in which the research instrument in description included a variety of tasks, the basic skills conceptualized to be employed in describing objects and events and tasks involving the functional use of description, it can be concluded that description is a feasible measure for looking at children's oral language behavior and gaining a better understanding of their growth in language power.

III. IMPLICATIONS

The findings presented in this study have certain implications for research, education, and instruction.

Research. An instrument based on description, such as the one presented in this study, showed considerable potential for one way of meeting the research needs for a comprehensive measure in language.

Education. Smith et al (1970) state, "Expansion is the key word in the language program (p. 167)." This includes the expansion of communication needs and experiences; in conceptual ability, control over the structure of language, and vocabulary; and confidence in the use of language. If expansion is the key word in the language curriculum, this way of looking at children's language development could be effective in curriculum planning.

Instruction. An instrument of this nature could prove useful to the classroom teacher who is concerned with discovering the instructional needs of individual children in order that appropriate curriculum experiences may be provided to enhance their language power. It is suggested that in a practical application of this instrument, the five descriptive tasks could be administered singly, the simple ones first and then the more complex, at different intervals in the regular classroom routine and frequently could be interspersed with the functional descriptive tasks which would chart growth in the strategy of description.

IV. SUGGESTIONS FOR FURTHER RESEARCH

As a result of this study, research in the following areas would seem desirable.

1. The study has revealed the importance of the strategy of description in a child's language growth. Each task might be examined thoroughly for its diagnostic potential.

2. A study might be designed to investigate further, in a more controlled study, the developmental factors in the concrete-abstract dimension and the implicit-explicit dimension suggested by the present investigation.

3. A study which might attempt to discover the relationship between children's performance in the seven descriptive tasks and their performance in standardized language tests such as classification, vocabulary, and reading should prove valuable.

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APPENDIX A

RESEARCH INSTRUMENT

DESCRIPTION: A MEASURE OF CHILDREN'S LANGUAGE POWER

Administration of Tasks

The tasks are to be administered to the individual children. It is important that the children understand this is not a test - that their performance on the various tasks will not be graded and that there are no right or wrong answers. The children should be cognizant of the purpose of the project which is to discover what children do when asked to describe objects, pictures, and events in various ways. The only requirement is that they attempt to do what is asked and that they try their best.

TIMING

It is important not to rush the children. They should be encouraged to think about the given task before responding. Follow instructions for the first four tasks with, "Think about it and tell me when you are ready." Repeat the latter whenever necessary. (Turn off the tape recorder after the child has completed each task and wait to turn it on until the child gives the signal that he is ready.)

7

The Tasks

I. Criterial Properties

Introduction

I am going to ask you to describe some objects and some pictures of objects. That is, I am going to show you an object like this (present the button briefly) and ask you to tell me all you know about it. There are many things you may think of about an object. Perhaps you will name it, give the color and tell the size, shape, weight, sound, smell, taste, and action. You may want to say what it is used for, what it feels like, where it lives, and what you like and don't like about it. You may describe the parts of the object. And you may remember that it is part of something else and will say so. The important thing is that you say everything you know about the object.

I am going to begin with simple objects. They will get harder as we go along. Remember, the important thing is that you say everything you know about the object.

Present the following stimuli:

1. button
   Directions: Describe this. Tell me all you know about it.
2. cap
   Directions: Describe this.
3. dog
   Directions: Describe this.
4. verbal stimulus
   Directions: Describe a horse.

Plate 1 Button, Cap, Dog

II. Selection of Essential Elements

1. Present the cap again.

Directions: Let's listen to what you said when you were asked to describe the cap (Play the child's recorded response for the cap.) Let's suppose you found this cap and you were writing a notice to be posted on the bulletin board in the office. What would you say in the notice so the owner could tell it was his cap when he read the notice?

2. Present the picture of the dog again.

Directions: Let's listen to what you said when you were asked to describe the dog (Play the child's recorded response for the dog.) Let's suppose this is your dog and that he is lost. You have looked for him and you can't find him anywhere so you decide to put an ad, a notice, in the newspaper. What will you say in the ad so if somebody has found your dog they will know from reading the ad that it is the dog you lost?

III. Comparison and Contrast

Present the following stimuli.

1. bell/jar of jelly beans

Directions: Compare these objects. How are they the same and how are they different?

2. container with powder/jar of jelly beans

Directions: Compare these.

3. truck/bus

Directions: Let's suppose these are not toys but actually the real thing. Compare them as though they were the real objects.

4. pictures of shoe/boot/slipper

Directions: Compare these.

5. verbal stimulus

Directions: Compare a school and a theatre.

6. verbal stimulus

Directions: Compare a birthday and an anniversary.

7. Present the pictures of the boot and slipper.

Directions: If an ant was looking at the boot and slipper, how would it compare them?

8. Present the pictures of the boot and slipper.

Directions: Let's suppose your father is reading the newspaper. He may be wearing boots or slippers. How would he feel wearing boots, or slippers, while reading the newspaper?

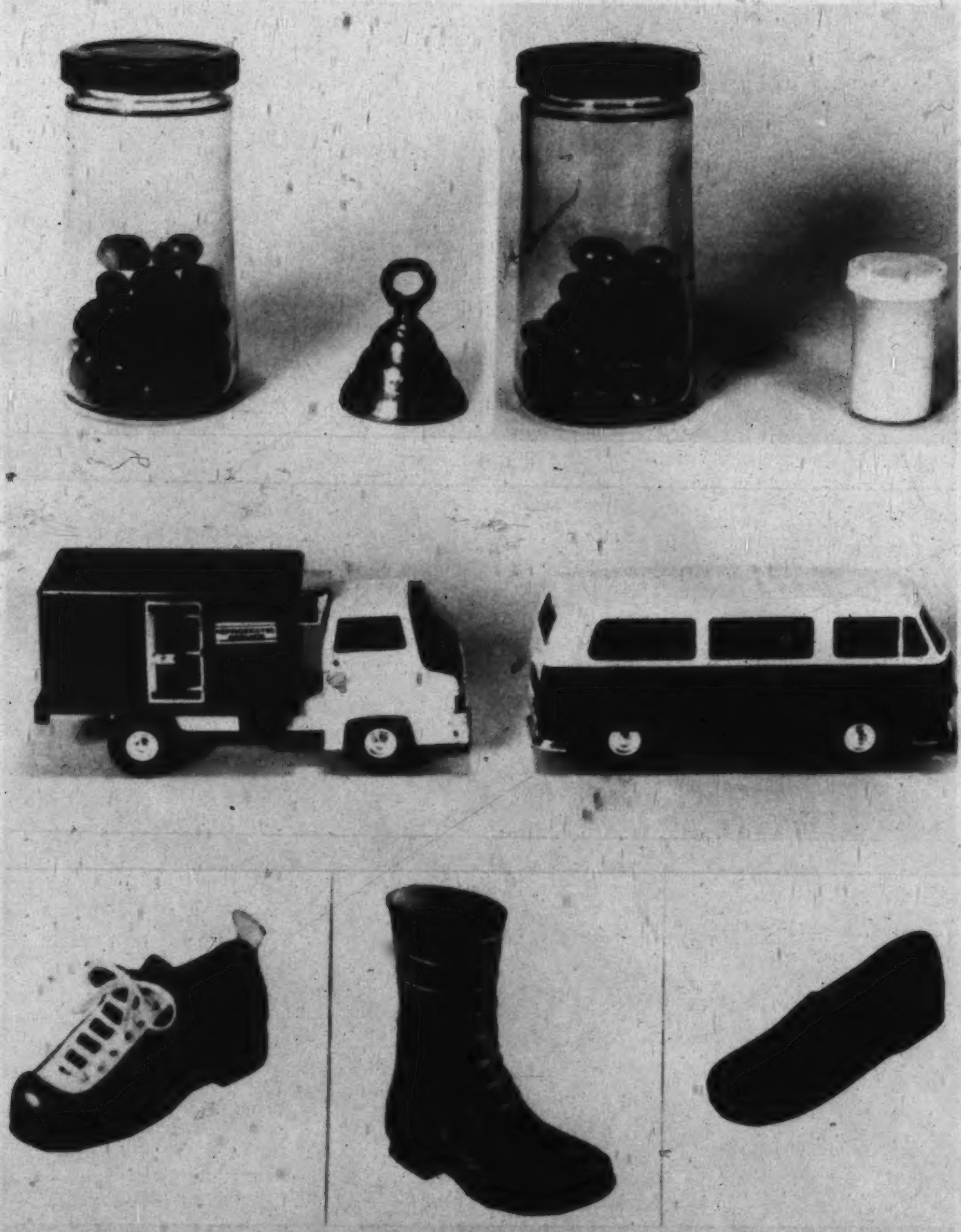


Plate 2 Jelly Beans and Bell; Jelly Beans and Powder; Truck and V. W. Van; Shoe, Boot and Slipper

IV. Sequencing

1. Directions: Suppose you and a friend were playing ball in a park 2 blocks from your home, what would you do if your friend fell and broke a leg while you were playing in the park?

2. Present 2 pictures of planting a bulb

   Directions: If these 2 pictures were 2 stages in a story or event,

   a) what would you say happened before the first picture?

   b) what would have happened between the first and second picture?

   c) what happened after the second picture?

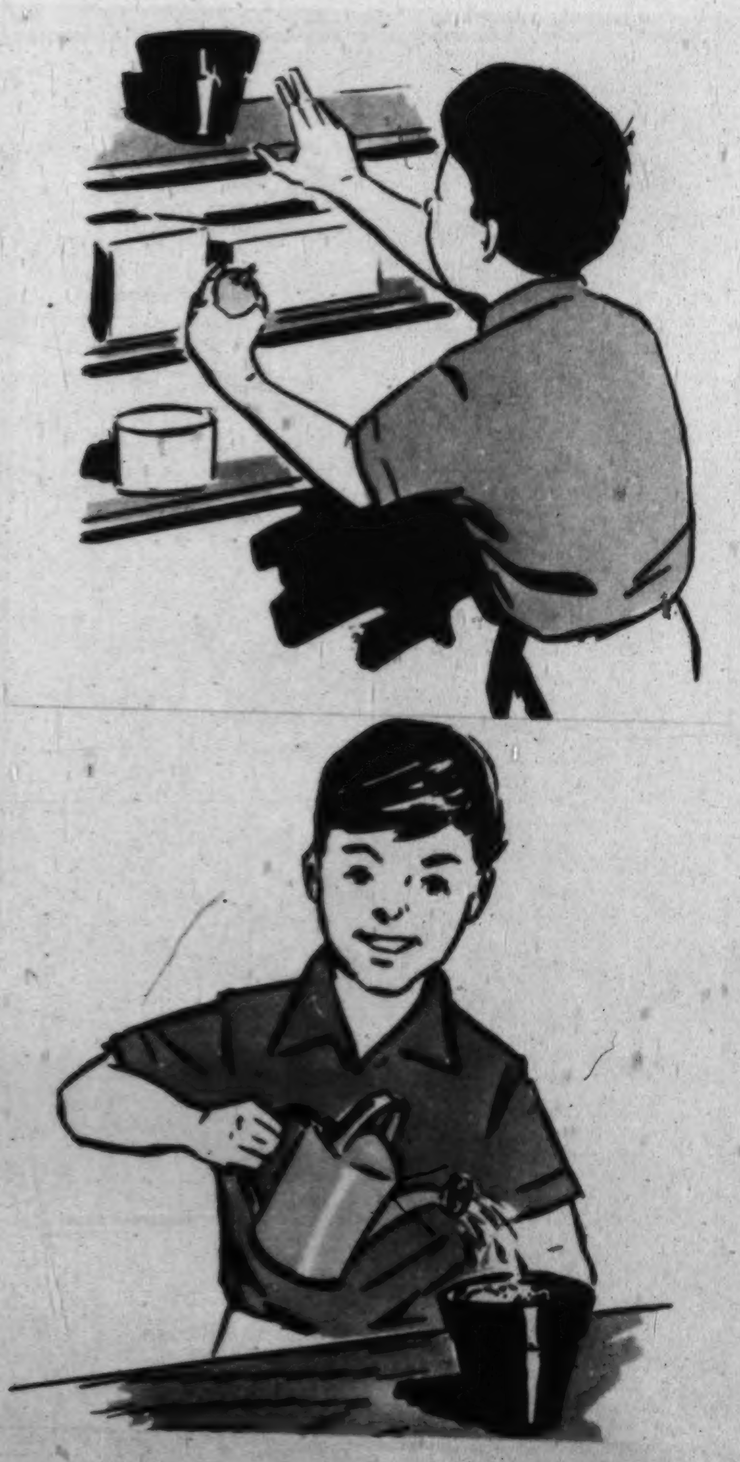


Plate 3 Boy Reaching for Flower Pot and Boy Watering Plant

V. Inference

1. Present picture of the car accident.

Directions: a. What happened?

b. What clues did you use to give this answer?

2. Present the picture of the teacher.

Directions: a. This person earns a living by ____________________.

b. What clues did you use to give this answer?

Present the picture of the plumber.

Directions: a. How does this person earn a living?

b. What clues did you use?

Present the picture of the model.

Directions: a. How does this person earn a living?

b. What clues did you use?

3. Present the picture of the coach and injured player.

Directions: a. What happened?

b. How does the person feel?

4. Read the following story aloud.

> Fred whistled a merry tune to himself as he reached the railroad and started home. Spring was in the air and that was enough to make anyone want to whistle.
>
> Now the railroad ran along Fisher's creek for quite some distance, a creek now made into a river by the spring flood. To Fred's surprise he heard the "slop-slop" of water around his shoes. Looking down he suddenly realized that the creek was slowly flooding the track bed. This was most unusual. The creek had never been this high before.
>
> At that moment a long-drawn whistle reminded Fred that the 4:45 was on its way. He could not allow it to reach the flooded stretch of railway. But how could he stop it?

> Then Fred remembered his Grandmother's Christmas present--a brand new, bright red scarf now tucked snugly around his neck.
>
> (Barrett, 1948, p. 65)

Directions: a. What would you do if you were Fred?

b. What else might be done (if you didn't have a red scarf)?

5. Directions: You are walking down the street and notice a man is boarding up the window of a house.

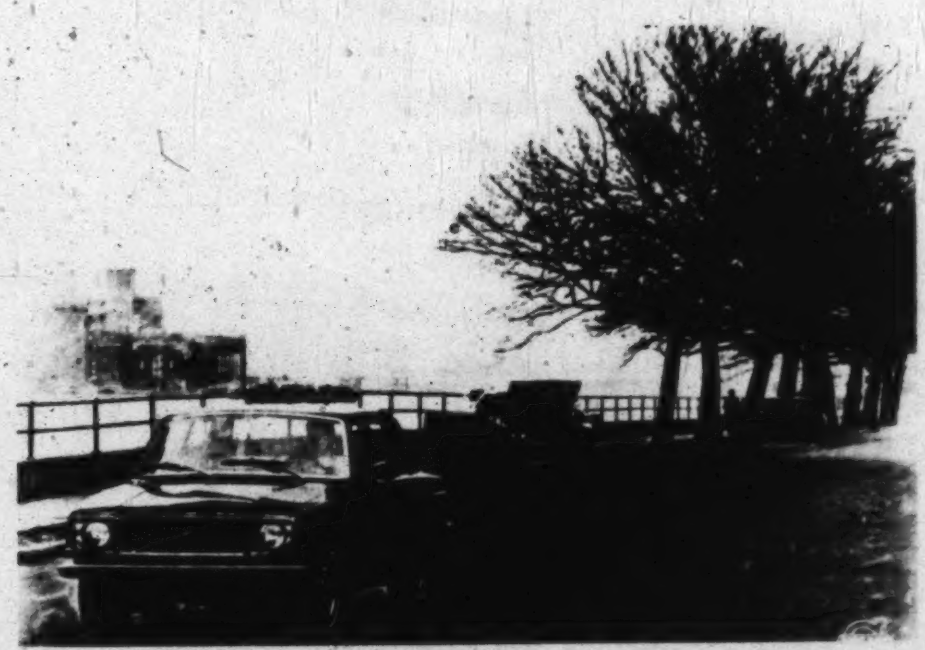
   What might have happened?

6. Present the picture of 2 people in a parking lot.

   Directions: What will they do now?

   How do the people feel? Why do you think so?

   How does the picture make you feel?



Chansons
Françaises

Plate 4 Car Accident and Teacher

Plate 5 Plumber and Model

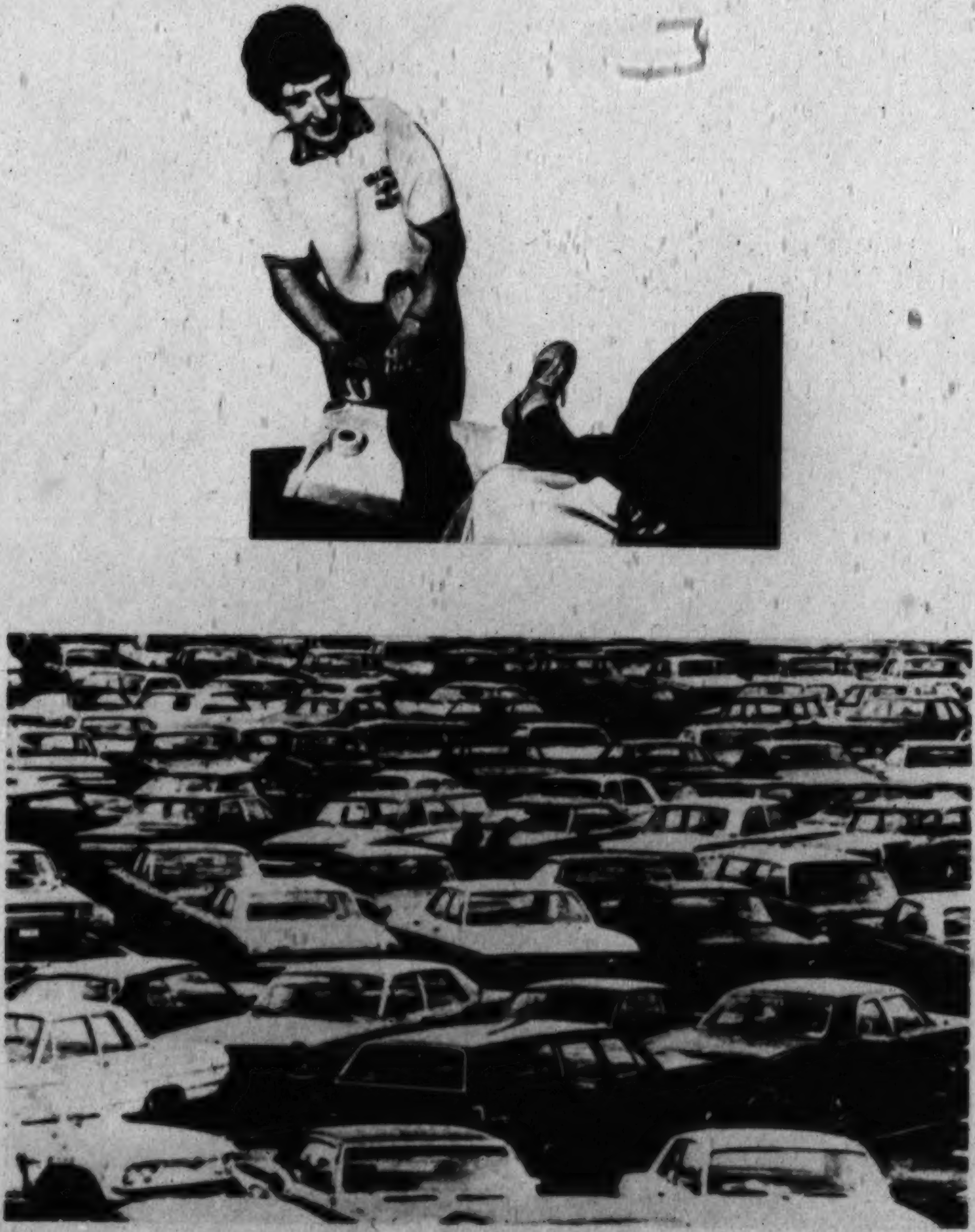


Plate 6 Injured Player and Two Men Surrounded by Cars

VI. Description

Present pictures - the fireman, crowd and policemen, harpist and children.

Directions: I would like you to describe one of these pictures. Choose the one you would like to describe.

VII. Story Telling

Story Telling

Present the 3 pictures presented in descriptive task #6.

Directions: I would like you to tell a story about one of these pictures. You may choose whichever one you wish. It may be the same one you described or one of the others. Think of a title for your story and be sure to give it when you are starting the story. I am going to leave the room while you record your story. Please call me when you have finished and we will play it back and listen to it together.

Plate 7 Police Barricade and Girl With Children

Plate 8 Fireman